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MEMOIR OF THE LATE STEPHEN VAN RENSSELAER,

AS THE FRIEND AND PATRON OF AGRICULTURE.

In offering to the public what it is hoped may constitute a large portion of a diversified and suitable LIBRARY FOR AMERICAN FARMERS—in which it is proposed not only to illustrate the science and to encourage the literature of their pursuit, but to journalize such practical results of associated and individual exertions as may at once denote and further the progress of Agricultural improvement—would it not be strange if we did not attempt to pay particular respect, as we go along, to the memory and services of those who have been called beyond that bourne whence no traveler returns?—men who, though now beyond the reach of flattery or favor, devoted, when among us, their time and fortunes to the promotion of that great concern, of which Washington himself hath said—"I know of no pursuit in which more real and 'important service can be rendered to any coun-'try than by improving its agriculture—its 'breed of useful animals, and other branches of 'a husbandman's care."

In consideration that our design, though intended for all who take an interest in rural affairs, has its *fulcrum*, or resting-point, here in New-York, there would seem to be a natural propriety in turning to do justice to him, among the first, who, though born in this city, embraced with his munificence the welfare of the whole agricultural community.

What General VAN RENSSELAER did for the farming interest, was not confined to particular acts—such as the importation of improved animals, and donations for public exhibitions of rural industry, judicious and liberal as these were. His contributions were made in a spirit of broader philanthropy. He caused, as we shall see, Institutions to be founded, and Sciences to be taught, that men might be, intellectually, better fitted to get along in this world as we find it, enjoying the greatest of all earthly blessings—self-respect, and the sense of personal independence. In thus going at once to the root of all social improvement, to lay its foundation where alone it can be laid, to last, IN THE MORAL CULTURE OF THE RISING GENERATIONS, the Patroon took the lead of his own age, and helped to form ours—ours, in which it is getting to be universally admitted that our political institutions, the condition of society, in fact all the circumstances of our country, demand a radical change in our educational systems. These must be generally more industrial than they are in their plan and character. The great, almost the entire mass of every generation is doomed to labor daily at some industrial occupation for a livelihood.—There is no security that the children, even in the first generation, of those who are in comparative affluence, shall not be brought, by unfortunate speculations, by the unavoidable accidents of trade, by prodigality, nay by our organic laws for the descent and distribution of property, to earn their bread by the sweat of their own brows. God himself hath kindly ordained that so it should be. Far from labor being a curse, if we take laboring-men as a class, they enjoy as such the greatest share of happiness, with the least alloy, if the labor be not immoderate, and its avails made *certain*.

From all his plans and actions, it is obvious that the Patroon had profoundly reflected on the defects in our systems of instruction, and thoughtfully scanned the spirit of our institutions; and having thus discerned the true wants of society, he was not the man to withhold his personal attention, or his bounty, where a great

social good was to be achieved; yet was there no ostentation in his beneficence. He acted truly as if he would not let his left hand know what his right hand did.

"No! no! his hand was opened—yet no sound
Of trumpet went before—though rich and free,
His bounties oft, like streams beneath the ground,
Unseen, poured treasures sparkling to the sea."

In founding, at his own expense, the "VAN RENSSELAER INSTITUTE," at Troy, of which we shall presently have occasion to speak more particularly, he evidently anticipated and acted on the convictions of an able writer, of very recent date, whom we must take leave to quote, even at the risk of prolonging this notice unreasonably; and that, not more to illustrate the forecast of the great friend of agricultural improvement, who is the subject of these remarks, than because, under no auspices more appropriate than under his name, could any observations be introduced to elucidate a subject which, though every day gaining in popularity, can in no wise be exaggerated in respect of its importance. Let us invoke, for this quotation, the particular regard of all opulent men who *ought*, and of benevolent men who *do*, exercise an influence in devising and forwarding plans for educational improvement.

"The education necessary for industrial pursuits is very generally underrated in this country, and from *this cause alone* springs a great deal of our want of industrial knowledge. Our ignorance is so great that we are even incapable of estimating its extent. If a boy is to be sent to a *profession*, great care is taken with his education. Literature and Science present themselves to him hand in hand. A reputation, the best passport to professional success, may, it is said, be founded on school and college character, and his ambition is excited by the social and political eminences which professional men may attain. But if he is going to trade or agriculture, education, it is thought, would be thrown away on him. If he can read and write and cypher, it is supposed to be enough. Should an ambitious parent desire to give his son a good education, although he is to be in trade, he puts him through college. He devotes the best years of his youth to reading Grecian poetry and Latin plays; to learning by rote the dialectics of the middle ages, and principles of abstract metaphysics; and awakens, after the solemnity of getting his degree, to find that he is to obtain his living by principles and pursuits to which his education has had no reference whatsoever. He finds that the safety of his property may depend on the navigation of a sea, of which he never heard whilst laboring for months to understand the geography of the Odyssey; that the mode of growth, or the chemical composition of a plant, of whose existence neither Greek nor Roman knew, may be the means of gaining or of losing fortune, and of it he has been left in ignorance; that his daily commercial intercourse is with men and nations, of whose languages and whose customs he is totally ignorant, whilst he has spent his youth in learning how he should have spoken had he lived three thousand years ago.

"It is very well for those, who, independent in fortune, and devoted rather to ease than enterprise, wish to dream through an existence which offers to them but roses they did not plant, to seek in the literature of past ages, an elegant and innocent occupation. Indeed, to all classes the literature of present and of former times, of our own and of foreign countries, presents a relief from the weary continuity of action, which industrial progress requires. To the man of business, there can be no enjoyment greater than to transport himself from the anxieties of the desk or factory, to communion with the best lessons, which human intelligence has handed down, or to obtain, within a few volumes, the records of the greatest deeds, the noblest struggles, and the holiest thoughts which have been allowed to man. But this is not his business. This knowledge is not that by which he is to live, and the first object of one dependent on his own exertions must be to employ them, to educate his faculties specially with regard to their future use in the development and the improvement of every part of whatsoever line of business he embarks in.

"The idea of there being no direct connexion between trade and education, has derived support, with many persons, from the examples of individuals, highly educated, failing entirely when they engaged in trade or agriculture, whilst other men, of no educaiton whatsoever, have been brilliantly successful in industry.—This argument is, however, when analysed, strong on the other side. What is called education by those persons, is not so, it is, on the contrary, worse than no education whatsoever. If a man knows Greek and Latin, if he can expound all the niceties of metaphysics, what does it avail him when he proceeds to spinning cotton, or to smelting iron; quite the reverse. His habits and modes of thought are at every moment shocked by the rough clashing of the realities on which his fate depends. His mind, accustomed to discussions, which, whether right or wrong, leave life as it has been before, becomes appalled at the stern calculations of a problem, in which his liberty, his home, his fortune is involved. The man is not able for his position, and he fails; but he fails not because he was an educated man, but because he was not educated for his trade."

For a fuller memoir, embracing a history of his family, his education, and his public life and services, to other institutions and pursuits, the reader is referred to an "able and interesting" obituary discourse, as it was most justly characterised when pronounced, by Hon. D. D. BARNARD, at a meeting and by request, of the "ALBANY INSTITUTE," of which, at its first organization, General Van Rensselaer, then in Congress at Washington, was unanimously elected President, and so remained until his death.

For this discourse, to which we refer, most conveniently, for facts with which his contemporaries only may now be quite familiar, we are indebted to Doctor T. ROMEYN BECK, who was deputed, in his character as Chairman of the Committee of Arrangement, to solicit a copy, and who from personal relations to the deceased, might well be designated as the organ for any office, that might best imply their reciprocal

confidence and esteem, and his own heartfelt participation at the common grief for the loss of one, who was opulent without pride, and wise without pretension. Of his very last moments, the estimable and accomplished author of the discourse, remarks: "He departed this life, on Saturday, the twenty-sixth day of January last. [1839.] It was at four o'clock in the afternoon, of a day which had dawned upon him with as fair a promise of closing on him, in life, as any perhaps which he had seen for the last two years, that, in a small cabinet of his ample mansion, which infirmities had made his chief asylum and sanctuary, for many months, sitting in his chair, with just warning enough of serious change previously, to alarm the fears of anxious and trembling hearts around him, the venerable man bowed his head and died." Recent incidental circumstances enable us to add, in proof of his well-founded self-possession at the last moment, that, on experiencing an extraordinary suffocating sensation, premonitory of immediate dissolution, he calmly observed—"My son, can this be death?" And how truly might he, if any man could, have added—"Oh, death! where is thy sting? Oh, grave! where is thy victory?"

The Patroon was born in the City of New-York, on the first day of November, 1764. His father was Stephen Van Rensselaer, proprietor of Rensselaerwyck, a manor of 48 miles by 24 in extent. His mother was Catherine, daughter of Philip Livingston, of the family of that name, to which belonged the Livingston Manor. Mr. L. was one of the signers of the Declaration of Independence. The Patroon's first school instructor was John Waters, when the profession of Instructor was regarded, as it really is when well sustained, one of the highest honor and usefulness. He was next sent to school at Elizabethtown, N. J.; but the troublous times of the Revolution coming on, he was driven thence to Kingston, where he obtained the first elements of a classical education, under Mr. John Addison, a shrewd, well-educated Scotchman, who afterward became a man of consideration in the State. In 1779 he was placed in the family of Doct. SAMUEL SMITH, under the instruction of him and his father-in-law, the celebrated Doct. Witherspoon, President of Princeton College; but "Princeton was still too near the seat of War; and the next year it was thought advisable to move the collegian to the University at Cambridge, then, as now, a distinguished and leading school of the higher kind in the United States. There, in 1782, in the nineteenth year of his age, with respectable attainments in the classical and other learning of the time, he took his first degree in letters as a Bachelor of Arts." A few days since, we were favored with a sight of his Thesis, written on this occasion, and yet preserved with filial reverence by his son and successor, who occupies the old Manor House, which he has tastefully enlarged without altering; observing all its pious exercises of family worship, and keeping up its ancient and elegant hospitality, in the midst of a charming family circle, with apparently nothing wanting to fill up the measure of virtue and of happiness. A well-stored library, shaded walks, and a garden adorned with every flower, and redolent of every sweet. What more can mortal man in this life desire or deserve?

Before he was twenty, General Van Rensselaer was married to the third daughter of Gen. PHILIP SCHUYLER, and thus became connected "by relationship (and one, as it proved, of great confidence and affection) with another of those extraordinary men whose names so crowd and illumine the pages of our Revolutionary history."

Though we shall therein extend this notice beyond the limits we had prescribed, it being our purpose only to embrace such incidents as might serve to present an outline view of his life, and that *especially as it was devoted to the promotion of Agriculture*, we cannot forbear, in the hope of the good it may do, to copy what is so well said by the more able and ample obituary notice before us.

"It was in the spring of 1787, when he was short of twenty-three years of age, in the vigor of manhood, just on the threshold of mature life, which sparkled brightly before him—with large possessions and wealth enough to lay the world under contribution for whatever it can afford to pamper appetite and passion, and supply the means of wanton and luxurious indulgence; it was then, and under such circumstances, that he deliberately chose, by a formal profession of religious faith, and a personal vow of religious obedience according to the doctrines and discipline, of the Christian Church, as adopted by the Dutch Reformers, to pledge himself to a life of temperance, simplicity, truth and purity. How well he kept his vow is known to all who had occasion to observe him; and how eminently he was blessed in keeping it, was seen in all those quarters where, I think, the Christian is wont to look for *the promise of the life that now is*—in the calm and quiet of a peaceful existence, in domestic relations of the most tender, harmonious and beautiful character, and in a resigned, appropriate, and happy death."

If we are led away from the line of observation within which we had intended to confine ourselves upon his character *as a Farmer and the friend of Farmers*, something must be allowed to our admiration of the man, and, may we not add, to our feelings as a friend?—To return within that line:—In 1802, Mr. Van Rensselaer married his second wife, Cornelia, daughter of William Patterson, a distinguished citizen of New-Jersey, by whom he had nine children, who still "afford the most satisfactory proof, that the example, instruction, and influence of Parents have been worthy of all approbation."

It should have been sooner mentioned, were it only in justice to his mother, that the Patroon was but five years old when he lost his Father, leaving the tender portion of his minority under her vigilant guardianship—long enough, says Mr. Barnard, "to receive those deep impressions of the value of religious faith, and the beauty of holy things, which were finally wrought firmly into the texture of his character." How often, let us add, on the boy at the Mother's knee, is form and pressure given to the character, the man! From her's, as from an angel's tongue, some conservative precept is addressed to his unformed mind, and sinking deep into his careless and sensitive heart, though the dear Mother may then be called away,—though orphanage, and poverty, and cruel neglect may unite to efface the holy impression, there it remains to fortify and to guide him—to support him in adversity and (under a higher power) to deliver him from evil. Hence has it been that the wisest and the best men have with gratitude ascribed to Maternal care all that manhood has won for them, of honorable and virtuous renown. How responsible then is the Mother's office! How full of true glory, when well performed!—Is that glory awarded by the world as often and as distinctly, as when earned by the other sex?—let that other sex and the world answer!

In 1810, a commission was instituted to explore a route for a Western Canal, which laid the foundation of the great system of internal improvements in this State. GOVERNEUR MORRIS, MR. VAN RENSSELAER, and Governor CLINTON—enough to render the enterprise illustrious, were of the commission. Accompanied by the Surveyor, they personally explored the route of the present Canal, from the Hudson to Lake Erie; traveling chiefly on horseback, and "not always without serious difficulty and much deprivation, from the uncultivated state of the country." "Sometimes they made the heavens their canopy and shelter for the night."—Their report, written by Governeur Morris, was made in 1811, and the subject of this memoir, being then in the Legislature, by his exertions and influence materially contributed to its success. This magnificent project, interrupted by the war, was resumed in 1816, when a memorial of great ability from the pen of Clinton, was presented, followed by a Report from the Commissioners, the Patroon being at their head; and in April of that year, the Legislature authorised the commencement of the great enterprise, to which, from its first conception to its completion, he gave all the benefit of his personal attention, and all the weight of his character. From that period to his death, he was a member of the Board, and its President for nearly fifteen years—from April, 1824, "when the name of his friend, the great Clinton, was struck from the roll of Commissioners."

In estimating the value of works of internal improvement, and awarding the honors due to the genius that conceives and the perseverance that carries them through, we are too apt to confine our consideration to their instrumentality in the creation of national wealth.—True, it must be admitted, their value in that light deserves to be highly rated in proportion as they convey the raw materials for manufactures to appropriate localities, and create wealth by opening a market to the productions of otherwise dormant but rich mines of lime, of coal, of iron, and to the productions of agricultural regions theretofore inaccessible; but such works deserve encouragement yet more as the promoters of knowledge, and civilization. Where men live in the gorges of mountains, or in the solitude of frontier settlements, without facility of communication with their fellow men, their minds become contracted, and sloth and ignorance and prejudice take the place of intelligence, sociality and civilization. An enlightened French Minister, in speaking of the cost of manufacturing iron in France, as affecting rail roads, said, "The question of the 'price of iron!—it is the question of roads, the 'question of communications, of intercourse be-'tween man and man—of the obliteration of 'prejudices—of the production of mutual amity, 'of morality and civilization."

But we must not here indulge in reflections which might so easily be amplified and illustrated, and which have been only thus far expressed in the way of demand for more enduring honor and gratitude to those, who, in projecting the great work that has connected the Hudson with the Western empire, have not merely added to the agricultural and commercial wealth and population of the country. They have achieved the highest aim of the Legislator—the crowning glory of the Philanthropist; for they have quickened the intercourse, improved the minds, refined the morals, and *promoted the harmony and union of the American people.*

In March, 1819, Mr. Van Rensselaer was elected by the Legislature a Regent of the University, and was Chancellor of it when he died—having been elected to that station on the death of the venerable Simeon De Witt in 1835.

In the same year, 1819, an act was passed, by his influence and that of other patriots united, "FOR THE ENCOURAGEMENT AND IMPROVEMENT OF AGRICULTURE." County Societies were to be formed: and the Presidents of these, or Delegates, should the Societies choose to elect them, were to form a central BOARD OF AGRICULTURE. This law, with the Board it created, expired by its own limitation; but, says the "discourse" from which our facts are gathered, "It lasted long enough to demonstrate the inappre-

ciable value of legislative aid and encouragement to the agricultural interest; and raised to itself an enduring and noble monument, by the publication of three very valuable volumes and memoirs."

In these volumes will be found papers which present complete views of the geological and agricultural features of Albany and Rensselaer Counties, made by scientific gentlemen, exclusively at the expense of the Patroon, the President of the Board. It is believed they were the first attempts made in this country, says the memoir, "to collect and arrange geological facts with a direct view to the improvement of Agriculture." Having caused these surveys to be published at his own cost, and gratuitously distributed, he next turned his attention to a more extended survey, which was accordingly carried the entire length of the State, on the line of the Erie Canal.

All these munificent enterprises, so much in advance of the times, appear to have been but preliminary to yet more extensive contributions to the science of Geology. Thus it was that, in 1823, Professor Eaton, in a manner that enrols his name high in the ranks of men of science, completed his grand survey, extending from Lake Erie to Boston, about 550 miles, embracing a belt of fifty miles wide. In 1824, a publication was made containing the results of these surveys, with illustrative maps. "Attention was strongly attracted, both in this country and in Europe, to the very creditable and faithful labors of Professor Eaton, prosecuted under the direction of his munificent patron; and this example it was, unquestionably, which has led at last to the adoption, in several of the States, (and this among the number,) of plans for exploring their territories at the public expense, in search of scientific facts, and of the mineral riches, and other substances of economical value, to be found upon or beneath the surface of their respective portions of the earth."

If, in the sketch so far presented of General Van Rensselaer's contributions to the general stock of agricultural knowledge, it should be thought that undue importance has been attached to his forecast, and his liberal expenditures for *geological surveys*, and analyses of the various soils and substances they developed, it must be because the importance of Geology itself to practical Agriculture is underrated.—Those, as we apprehend there are too many, who do not see at once their intimate and essential connection, may be advised to remember that though, of the elements existing in animals and plants, the four which are supplied by the atmosphere and water constitute by far the largest proportion; yet all the remaining elements, in much greater number, are equally indispensable to a healthy existence of plants, and must be derived from the *soil on which they are cultivated.*

The general interest of the subject, as well as the obligation to illustrate the merit we claim for the deceased, on account of the several and extensive geological surveys made at his instance and expense, will justify us in taking space for, and calling the attention of the practical reader to, the following extract from a writer already referred to, from which our own impressions, better expressed by himself, have been in part derived:—

"The objects of the philosophical agriculturist, as well as the most effectual means of advancing husbandry, consist in—

"1st. *Studying the composition of the soils;*

"2nd. Studying the action of plants upon it.

"The soil is formed by the decomposition of the minerals of which the crust of the globe consists. The water which flows over the surface is absorbed into the pores and fissures of the rocks; and in winter, on freezing, it expands with such irresistible force as to crumble down even the materials of the densest and hardest stone. The pulverulent or gravelly material so afforded, is carried down by rains or floods to the lower grounds, and, spreading over the more level country, forms the cultivatable soil. Independent of the mechanical action of water, the constitution of numerous rocks is such as to cause their gradual decomposition by its chemical action, as in the case of felspar and other minerals; and, by the direct action of the atmosphere, all rocks which contain protoxide of iron very rapidly decompose and crumble down.

"Such being the origin of the soil, its constitution will be easily understood to depend on that of the rock from which it has been formed; and as on this constitution its fertility, or its power of supplying plants with the materials they require for their growth, mainly depends, it will be seen that the agricultural capabilities of a country are immediately connected with and dependent on *its geological character.* A district, of which the rock is simple in its constitution, cannot furnish a fertile soil. A pure quartz rock, or a pure limestone, could only furnish, from its soil, to plants, lime or silica; and they should hence languish for want of other equally important elements. The edges of a geological district, where various rocks are in contact, will, therefore, always be more fertile as to soil than its interior; and the more numerous are the rocks in its neighborhood, and the greater the diversity of their mineral character, the more complex will be the soil furnished by their decomposition, and by its power of furnishing the elements of growth to different kinds of plants, the greater will be the range and energy of its fertility."

With increasing years, seems to have increased his constant wish to be sowing the seeds of knowledge and humanity. Thus it was, that, having now attained his threescore of years, the Patroon employed Professor Eaton again to traverse the State, prepared now, with apparatus and specimens, to deliver, in all the principal towns and villages, familiar lectures on Chemistry, Natural Philosophy, and various branches of Natural History.

The encouraging results of this experiment stimulated him finally to establish a school, of which, as he declared, his principal object was to "qualify teachers for instructing the sons and daughters of Mechanics, in the application of Experimental Chemistry, Philosophy and Natural History, to Agriculture, Domestic Economy, and the Arts and Manufactures."

This school, established at Troy, was incorporated in 1826, under the name of the "RENSSELAER INSTITUTE." "It may be described," says Mr. Barnard, "as a school for thorough and complete instruction, in the circle of the natural sciences, applicable, in any way, to the economy or business of life in all its civil departments—not however including those usually denominated professional. The peculiarity in the mode of instruction, originally introduced, has been adhered to; and the distinguishing and eminent advantage gained by this peculiarity of method has been, not only that the students themselves have been thoroughly taught, and are ready, at all times, professionally or otherwise, to make a practical and highly useful application of their knowledge, for their own benefit or the benefit of others, but that, whether such is their occupation and business, or not, they go out to the world as an army of Teachers, so familiar with the various subjects of their knowledge, and so fitted and accustomed, from long habit, to impart it, that they become involuntarily the school-masters and instructors of every circle into which they enter. They are lights and luminaries to the prevalent darkness that may surround them, gentle and mild, but radiant and steady, in whatever orbit they may chance to move.

"It is impossible to compute, or perhaps to give any rational conjecture, about the amount of good which has already been effected through this munificent and skilfully-devised charity—much more impossible is it to compass, in thought, the benefits which coming generations must reap from that system and plan of Education, of which the example was first set, and the eminent utility satisfactorily tested, in the Rensselaer Institute. Schools have been set up on the Rensselaer method, in various and distant parts of our country; and it has been stated to me as a fact, from calculations actually made, that the Institute has itself furnished to the community, more experimental Teachers and Professors, State Geologists, Principal and Assistant Engineers on Public Works, and practical Chemists and Naturalists, than have been furnished, in the same time, by all the Colleges in the Union. If the half of this statement be true, the result, in this single particular, is a proud one for the memory of the Patron through, whose almost unknown munificence it has been effected."

The friendship with which we were honored by the venerated subject of these details, enables us to state, with distinctness of recollection founded on personal agency in the transaction, an instance of liberality and public spirit, that ought not to be omitted in a memoir which seeks not to dwell on his numerous public, and yet more numerous private charities, but to refer only to his munificence in the *cause of American husbandry*, and of *education* which contributes to the prosperity of every interest and the growth of every virtue.

As far back as 1822—vigilant in all things transpiring for the rural promotion of economy—he had noted the meliorations which had been effected in the points and properties of *cattle*, in England, by the efforts o the Collingses and others in establishing the breed of "Improved Short-horns," distinguished, as it was said, for mellowness of handling, propensity to feed at an early age, and great aptitude to take on fat. He called on the writer of these remarks (then conducting the old "American Farmer,") as was his wont in passing through Baltimore, to and fro, between Albany and Washington, to converse on his favorite topic; and, giving him a *carte blanche*, requested him, by whom Champion, Shepherdess and White Rose had been then recently imported for his friend, and kindred spirit in munificence, Robert Oliver, of Baltimore, to order for him a Bull and two Heifers, from the same highly respectable breeder, the late Charles Champion, of Blythe. In making this importation, it was not from any personal conviction of the superiority of this race over our native breeds, for which he had enjoyed no adequate opportunities, much less was it with any view to personal gain, being willing, he said, to risk whatever they might cost for the public good that might result from disseminating, such excellent qualities as they might be found to possess. A Bull and two Heifers, Washington, Conquest and Pansy were accordingly imported, at a cost, in England, of $1050. Of the first, Mr. Champion observed in his letter to Mr. Skinner, "I do not hesitate to say that Washington possesses more valuable points, substance, and desirable qualities of flesh, with as light bone and offal, as any bull I ever saw, and I feel great pleasure that I have such an animal to send to a gentleman you estimate so highly, as General Van Rensselaer."

Again we pray the reader not to blame us for the length of this Memoir. Let that rather be ascribed to the long catalogue of good deeds which illustrated and adorned the life of him whom we have attempted to hold up as the untiring patron of the concern which it is the great purpose of the "FARMERS' LIBRARY" to promote. An unvarnished chronicle of all his acts of public and private munificence, as far as, without any wish of his, they came to the knowledge of the world, would fill a volume.

True it may be said, in view of the Patroon's immense possessions, "of those to whom much is given, much will be expected,"—but no caviling can rob him of the merit of having met this fair requirement. Let us only hope that his example may be followed by those whom chance or industry may have blessed with superfluous fortune; for as none can take that

with them to the grave, how else can all that is superfluous be better bestowed than in augmenting the means of social comfort and the stock of useful knowledge?

Though, under the circumstances alluded to in the commencement of these remarks, our first regards seemed to be due to him, we shall not fail in respect to other eminent departed worthies, whose memory deserves to be cherished by every friend of Agriculture. All of whom we can get suitable memoirs, shall have their places of honor in the FARMERS' LIBRARY; for who, however it may be contrary to the mistaken public sympathies and perverted legislation of the day,—who, let us ask, really so much deserve public approval, and the homage of posterity, as those who in their own walks set examples of industry, and by their munificent exertions and expenditures have taught us to make honest industry most efficient and available? As compeers in the advancement of the cause which it will hereafter be our duty, as it has ever been our pleasure to advocate—for be it once more observed that it is only in that career of common service for a common good that we presume to hold them up, as the feeblest hand, in the want of a stronger, may hold a lamp to the footsteps of the inquiring wayfarer. With their sentiments as politicians and Statesmen, however variant these may have been, we have no concern. Detested be the prejudice that would lead us to value them the less as men, or as husbandmen, for any honest difference of opinion between them as Statesmen; and here, once for all, be it proclaimed, that if, on any occasion, either from obscurity of expression on our part, or obliquity of the reader's vision, we may appear to indicate any party-political bias, or to use the pages of this Journal to propagate political or religious dogmas, or to foment sectional antipathies, we repudiate before hand an imputation as odious as it would be unjust. Finally, in place of having unwarrantably prolonged this memoir on the services rendered by the Patroon to the two great associated interests of AGRICULTURE and of EDUCATION, we are but too conscious of having fallen short of what was due alike to his sagacity and his munificence—yet must here close it, with the fervent ejaculation of a pious friend who knew him well—

"Yes, he was greatly good, and nobly wise—
The Christian, Patriot, Gentleman and Sage.
Go learn of him, wherein true wisdom lies.
Study his life—and may the hallowed page
Thy zeal inspire, and all thy powers awake
Like him to live—like him at last to die;
And then, when death life's golden cord shall break,
Like him, to find a better life on high."

DEEP PLOWING.

ONE EXPERIMENT TO ASCERTAIN ITS EFFECTS.

With some Remarks on the Writings of THOMAS MOORE, of Montgomery County, Maryland, and JOHN TAYLOR, of Caroline, Virginia.

ONE of the earliest incidents, within our recollection, which served to impress upon our minds the scope which practical Agriculture offered for the exercise of the *mind*, was the reasoning contained in a pamphlet written by THOMAS MOORE—and if we could get a likeness of him, we would have him engraved for the FARMERS' LIBRARY, and with it publish a memoir of what he did for the improvement of Southern or Middle States Agriculture, even though it might serve to preserve, besides his likeness, nothing more than the pamphlet before mentioned. All we remember of him is that he belonged to the Society of Friends, who, proverbially, make good Farmers; that he was of Montgomery County, Maryland, where some of the best Farmers, of that same friendly persuasion, now reside, to illustrate the beauties of good management and unostentatious hospitality; that he had a turn for Engineering; and that we understood Mr. Jefferson was always glad of an opportunity to converse with him on Agriculture.

It was the habit of the Editor's father to devour every thing he could get hold of on Agriculture—of which, however, scarcely any thing ever offered, except an occasional pamphlet, or newspaper essay. Of the former, few ever prompted more reflection, or more efficiently promoted great improvement, than this little pamphlet on *deep plowing*—entitled, as well as we can remember, (for we were very small when made to read it "out," as it was called,) "THE GREAT ERROR OF AMERICAN AGRICULTURE EXPOSED."

It was about that time, too, that the celebrated essays of "ARATOR," from the pen of the celebrated "JOHN TAYLOR OF CAROLINE," appeared in, first, we think, a Georgetown, (D. C.) paper. These served to give an impulse to Southern Agriculture, resembling in some measure the influence of a great storm when it

comes to agitate the bosom of the peaceful Ocean.

On concluding, for the reasons given in the Memoir of Gen. Van Rensselaer, that it would be even more imperatively just than politic to record in the Farmer's Library what we could yet recover of the benefactions of departed friends to American Agriculture, our first thought and endeavor was to get a portrait and appropriate notice of the Author of ARATOR.

Although so far disappointed, we do not yet despair of some success.

We are aware, as to deep plowing, that some regard is to be had in the first instance to the depth of the top soil. Early opportunity will be taken to present the subject in all its aspects, as it has been explained and illustrated by Johnson and others in Europe and in America. Our purpose for the moment is only to give the following, the perusal of which suggested the foregoing hasty remarks:—

Account of an Experiment in Deep Plowing.

BY REV. JOHN JAFFRAY, DUNBAR, EAST LOTHIAN.

[*Premium, Five Sovereigns.*]

THE experiment was made upon a small field, which is sixty-five feet above the level of the sea. The soil is sandy, resting upon a subsoil of sand and gravel of great depth, and so thoroughly drained by the declivity of the surrounding lands, that want of moisture is its natural defect. There is but little difference between the soil and the stratum on which it rests beyond what culture and manure have made; but, from sinking of gravel, treading of horses, and pressure of the plow, year after year, and age after age, the subsoil had become crusted, hard, and beaten as a road. In short, from shallow plowing, there was but little depth of cultivated earth; and, as on all such soils in dry seasons, the crop was scorched and scanty.

With a view to render this field fruitful in any season, it was subsoiled with the Deanston plow, eighteen inches deep, and sown with wheat for crop 1837. The great vigor and luxuriance of the crop attracted general notice; and it must have yielded an extraordinary increase, if it had not been lodged by wind and rain shortly after the ear appeared. Therefore it gave only thirty-eight bushels of grain per acre, but three tons of straw, which proved its great strength. To this crop, one of potatoes and two of wheat succeeded; but it is the culture of this field for crop 1841, and the result, which chiefly constitute this report.

It was all equally dressed with seaware; and four acres of the same quality and description were measured and staked off. Two of these acres were plowed twelve inches deep with two horses, and two of them eighteen inches deep, with four horses. These two portions in all other respects were cultivated and managed exactly alike. They were planted with potatoes of the Don species in the last week of April, eight inches deep, twelve inches asunder, and in drills thirty inches wide, running at right angles to the furrows of the experimental plowing. The potatoes were planted deeper than usual, therefore the shoots were longer in coming through the ground, but, when they did appear, it was with great strength and regularity. They expanded their broad deep-green leaves, and grew vigorously, in the dry sandy soil, in a very severe and long-continued drouth. It was soon evident that the deepest plowed portion had the advantage; the stems and branches of its plants were stronger, and they first covered the ground.

The potatoes were lifted in the last week of October, when it was found that the land plowed twelve inches deep produced fifty-seven bolls per acre, and the land plowed eighteen inches deep produced sixty-nine bolls per acre, being a difference of twelve bolls per imperial acre, of four cwt. to the boll.

It is a condition annexed to the premium offered by the Highland and Agricultural Society for experiments in deep plowing, that one-half of the land used "shall be cultivated in the ordinary way." By evidence before the Agricultural Committee in 1836, the depth of plowing in this country is from *six* to *nine* inches. If that depth had been taken for the lowest extreme in this experiment, the difference in the production of the two portions, it is believed, would have been greater; but as this field had been plowed *twelve* inches deep for years, its ordinary depth was adhered to, and the difference is certainly sufficient to establish the advantage of deep plowing.

As to the quality, it is excellent for the season from both portions of the land, and in that respect there is no difference. The potatoes from the deep tillage were larger, more of one size, had fewer small ones, and not so many of a green color as those from the other division.

The quantity on the deep tillage is eighty-seven bolls per Scots acre, which is a good crop for any year; and it will readily be granted that it is far above the average of the district this year, many fields not producing half a crop.—A superiority so striking must, therefore, be ascribed to deep culture, being on both portions deeper than ordinary, which furnished moisture in a very dry and scorching season to a sandy soil, and raised its produce above that of richer lands. But though this is a great crop for the season, it must have been still greater if the field had been less exposed, as it has no shelter; and three days of very violent wind in the first week of August broke down the plants, which, from their great luxuriance, were then very tender, and checked their growth.

The practical conclusions to be drawn from this experiment are—

First, That deep plowing increases the produce.

Next, That, as both portions of the land used in the experiment were opened up eighteen inches deep by the subsoil plow for crop 1837, the full benefit of that operation is not obtained till the earth so loosened is again plowed up. And the reason is evident; for it is then only that the soil is deepened, by an addition from the subsoil with which it is intermixed, and rendered more fruitful.

Lastly, If deep plowing increases the produce, it increases also the supply of vegetable manure; and a greater portion of manure, added to improved culture, must produce a progressive increase of fertility and of produce.

This experiment was begun on the glebe of Dunbar for the amusement of the reporter, and before he knew that any premium upon the subject was offered by the Highland and Agricultural Society.

BRITISH AGRICULTURAL DISSERTATIONS

APPLICABLE TO AMERICAN HUSBANDRY.

An impression exists, which, considering its nature and effects, may, perhaps, in the worst sense of the word be denominated a prejudice; to wit: that owing to diversity of circumstances, such as difference of climates, forms of government, the price and the rental of land, and the relations between the employer and the employed, in the two countries; little or nothing can be found in *English books*, or discovered in English agricultural practice or implements, which is applicable to American Husbandry, and therefore that little or nothing from that quarter is worthy of being read and patronised by American Farmers.

Acting under a very different impression, we shall draw very largely from English and European works, for what we hope will prove both entertaining and useful to the patrons of the Farmers' Library; but of this, of course, they must be the judges.

We should not, however, deem it expedient to do so, without exercising very great caution, if ours were an imitative people, like the Chinese; but we shall feel that more freedom may be used, and less apprehension felt, of injury, from any oversight of ours, in consideration of the fact that Americans, thanks to the freedom of their government, are of all people the least given to mere *imitation*. No people exercise more freely all the powers of mental investigation into the reasons for what is proposed out of the common track, and the qualities of new things offered for their adoption. It is in that conviction that we shall present frequently, to the consideration of our readers, essays and drawings and descriptions of machinery, which have commanded high premiums, in England and Scotland particularly—first subjecting them to critical examination, as to their adaptation to our soil, circumstances and course of cropping; but after all, not much fearing but that the generality of American readers will examine *for themselves*, with capacity to detect, as we before said, any mistake of ours. Sometimes it will happen that we must give something that is obviously inappropriate, for the sake of valuable suggestions, with which such inapplicable matter may be mixed up or connected. But here—and emphatically, we would have it *distinctly understood*, that we shall pass by nothing which may come in our way that American science or experience can suggest or have tested, which appears to be new and worthy of record and dissemination. On the contrary, such suggestions and such experience will always have preference over other matter. But we confess to place no very high estimate upon mere statements of facts and results, unaccompanied with reasons and an accurate statement of all attendant circumstances. We prefer in all cases what is inductive to what is merely empirical.

Mistaken or not, in thus drawing freely and often from the fountains and stores of European science and experience, we shall at least have the satisfaction to know that in this we shall be standing somewhat aside from the path of fellow laborers whose judgment we have been accustomed to respect, and whose way we have no right, much less any inclination or power, to obstruct.

Imperfect as may be our view of the real wants of American agriculturists, it seems to us that much, amounting to repetition if not repletion, has been said of the practical details and the measured results of experiments in the cultivation of particular crops, the weight to which beasts may be pampered, and of the trial of various implements, with, or without a view to premiums.

We have been told, and usefully told, it is readily admitted, that A, from a specified quantity and kind of corn or wheat, planted or sowed in a particular manner, has gathered a certain large quantity of grain per acre—and that B has fatted and slaughtered a bullock, sheep, or hog, of his favorite breed, that at a certain age attained such and such an extraordinary weight.

Now all this is very useful in its way, and commendable, as it shows how much can be accomplished, in the way of heavy *crops*; while as to *animals*, it demonstrates the difference of breed; proving that some are endowed with aptitude to take on fat at an early age; while others are of slower growth. That the former may be the better for rich pastures and the butcher, while the latter may be preferable for the dairy, for scanty herbage, and finally for the table. All these facts may be again, as they have been repeatedly demonstrated; but to our comprehension of the true wants of agriculture, in the existing condition and circumstances of that

great pursuit in this country; there needs now to be more said of *its philosophy*—of the *principles which control and explain its results.*

"Hang up Philosophy,
Unless Philosophy can make a Juliet."

Well, if Agricultural Philosophy can't make a Juliet, it can make a much more useful personage—for it can instruct the thrifty house-wife how to manage her Dairy, in such manner as to obtain the greatest quantity of butter, and so to prepare it that it will keep the longest time. All this we hope to show her, if she will keep, on her own bunch, the key of her husband's "FARMERS' LIBRARY." That same Philosophy, which is but another word for knowledge, will teach her too—with the aid of Mr. WILDER and Mr. TESCHEMAKER, of Boston—how best to manage her choicest fruits and flowers. And after all, no man, no *husbandman*, can prosper *against* the will of the house-wife—for as old father Tasser quaintly says:

"Take weapon away, of what force is a man?
Take huswife from husband, and what is he than?
As lovers desireth together to dwell,
So husbandry loveth good huswifery well;
Though husbandry seemeth to bring in the gains,
Yet huswifery labors seem equal in pains.
Some respite to husbands the weather may send,
But huswives' affairs have *never an end!*"

Heaven bless them, who would not turn aside to do them a good turn? But——

It is this *rationale* of the Farmer's pursuit, the *why* it is thus and so, that will reveal to him how he may best circumvent the certainly exhausting effects of continued demands upon his land, operating in fearful coincidence with dear labor and low prices, and it is in a great measure from foreign publications that we hope to supply him with these necessary lights. Why, even in England, one of the very last writers on the utility of a more extended application of chemical analysis to Agriculture, says that this art has there of late years assumed an entirely new character! Most chemists, he adds, "have turned their attention to it, and now farmers are content to listen to the suggestions of scientific men, in explaining that which before was thought a mystery."

It is not, by any means, that we have not among us the men of learning prepared to instruct the young farmer in all the natural science connected with his occupation, but who has a right to expect such men to come before they are called? In England, says the writer already referred to, the Royal Agricultural Society, patronised by the Government, have been the chief instruments in effecting the wonderful reformation which agriculture is undergoing. That Society have "*authorized the delivery of lectures* by men of great talent (Doctor Daubeny, Professor Playfair, &c.,) which lectures have been attended by *great bodies of farmers*; rewards have been given, and are still held out by this Society, for *original papers on manures and other subjects, requiring a knowledge of Chemistry on the part of the writer*,"—and these are *the papers*, among others, that will be transferred from foreign journals to the pages of this, the American "FARMERS' LIBRARY." Who doubts that with equal, or with any moderate encouragement we might have lectures and papers equally valuable, from our "AGRICULTURAL ASSOCIATION" in New-York; the "VIRGINIA STATE AGRICULTURAL SOCIETY," and others existing and that would come into existence under genial influences, as naturally as

"The snow drop marks the Spring's approach."

Let but the demand for agricultural science be created and the supply will follow to meet it as surely in this as in mechanical and other pursuits. But the other day, in execution of an act of Congress, some Post-Office letter scales were demanded, and in a few weeks more than 80 competitors presented themselves, each with his own cunning contrivance, to show how unparalleled in the world, is the untrammeled ingenuity of our countrymen when stimulated by the hope of adequate recompense. But when will our government imitate the example of what is good even in despotisms, and offer high rewards for agricultural improvement? Is it for the agricultural reformer that our *Republican* government provides the glittering badge of power and distinction—the high pay, and the life salary? Is it for the plodding discoverer in the peaceful arts, men who beggar their families and destroy their health in civil service, that it provides magnificent quarters for the robust, and hospitals for the sick? In the absence then of all government encouragement let countenance be given to individual exertions, and societies be formed to spread light on the field of Husbandry. It demands delights and flourishes in the light of science as much as in the light of the sun; and we are not altogether deficient in men capable of reflecting it. It is the taste—the conviction of the necessity, that is needed. Only advertise the play, fill the house, and lift the curtain, and our lives upon it we shall not be long before we have the actors coming on the stage. Here we have our Mercantile and Mechanical, our Medical and Law Institutes, with their immense Libraries, stored with appropriate instruction on every imaginable branch or problem connected with mechanical philosophy, with commercial pursuits and the sciences of medicine and law, and why *should the Farmer alone be without his Library and his Literature?* The Farmer, whose occupation, when understood and followed as any man should wish his son to understand and follow it, demands some acquaintance with Botany—the culture of trees, with mineralogy—with chemistry, with entomology or the knowledge

of insects and all the branches of Natural History—unless indeed they are content to remain, and have their sons remain mere ignoble imitative clod-hoppers. Once more we repeat that it is the taste that is wanting. Be it then our pleasing duty, with a feeble hand but willing heart, to assist many and more able fellow-laborers in begetting such a taste; and how can that be better done than by laying hold of the best means within our reach, among which we regard these philosophical disquisitions, such as we find, already to our hand, in these foreign weekly, monthly, and quarterly Agricultural Journals. Disquisitions illustrated and supported for the most part, by all the details of actual experiments, and all the analogical circumstances necessary to intelligible and fair comparison and deduction? Is there any reason why we, who cater for the agricultural, should be less elert, than he who panders to the gastronomical appetite? Which is most useful, to pamper the cravings of him whose hunger is for knowledge; or to go abroad for dainties and fashions to humor the caprices of the glutton or the fop?

Such at least are our views of some of the wants of American agriculture, at this time; and of our duty and our means to supply them. Whether, what we shall offer, of articles thus imported, deserves to be encouraged, until an improving taste shall hold out encouragement sufficient to insure their domestic production, is a question for our readers to decide. Our liberal publishers tell us to go ahead and make a fair experiment. If it fail it shall not be for want of industry, and of heartfelt anxiety for the prosperity of the interest to which we hope to devote the residue of a life spent, we assuredly may say, in no feeling of indifference to the honor and welfare of American Agriculture. Having thus explained how we hope to benefit the cause of American Husbandry, by the publication of the best essays from abroad, for many of which, written by men of the highest reputation, large premiums are paid, we proceed now, with pleasure, to show our preference for domestic production when of superior quality, by giving place to one which obtained the premium from the New-York State Agricultural Society which ought, of itself, to be sufficient to give it the stamp of excellence—but which over the signature it bears, would sufficiently commend itself to our attention and its author to our thanks.

ON FARM MANAGEMENT.

PRIZE ESSAY—BY J. J. THOMAS.

THE great importance of performing in the best manner, the different operations of agriculture, is obvious to every intelligent mind, for on this depends the success of farming. But a good performance of single operations merely, does not constitute the best farmer. The perfection of the art, consists not only in doing everything well, individually, but in a proper adjustment and systematic arrangement of all the parts, so that they shall be done, not only in the best manner and at the right time, but with the most effective and economical expenditure of labor and money. Every thing must move on with clock-work regularity, without interference, even at the most busy seasons of the year.

As this subject includes the whole routine of farming, in a collected view, as well as in its separate details, a treatise upon it might be made to fill volumes; but this being necessarily confined to a few pages, a general outline, with some remarks on its more essential parts, can only be given.

CAPITAL.—The first requisite in all undertakings of magnitude, is to "count the cost." The man who commences a building, which to finish would cost ten thousand dollars, with a capital of only five thousand, is as certainly ruined, as many farmers are, who, without counting the cost, commence on a scale to which their limited means are wholly inadequate. One of the greatest mistakes which young farmers make in this country, in their anxious wish for large possessions, is, not only in purchasing more land than they can pay for, but in the actual expenditure of all their means, without leaving any even to *begin* the great work of farming. Hence, the farm continues for a long series of years poorly provided with stock, with implements, with manure, and with the necessary labor.—From this heavy drawback on the profits of his land, the farmer is kept long in debt; the burthen of which not only disheartens him, but prevents that enterprise and energy which are essential to success. This is one fruitful reason why American agriculture is in many places in so low a state. A close observer, in traveling through the country, is thus enabled often to decide from the appearances of the buildings and premises of each occupant, whether he is in or out of debt.

In England—where the enormous taxes of different kinds, imperiously compel the cultivator to farm well, or not farm at all—the indispensable necessity of a heavy capital to begin with, is fully understood. The man who merely *rents* a farm there must possess as much to stock it and commence operations as the man who *buys* and pays for a farm of equal size in the best parts of western New-York. The result is, that he is enabled to do every thing in the best manner; he is not compelled to bring his goods prematurely to market, to supply his pressing wants; and by having ready money always at command, he can perform every operation at the very best season for product and economy, and make purchases, when necessary, at the most advantageous rate. The English farmer is thus able to pay an amount of tax, often more than the whole product of farms of equal extent in this country.

The importance of possessing the means of doing every thing at exactly the right season, cannot be too highly appreciated. One or two illustrations may set this in a clearer light. Two farmers had each a crop of ruta-bagas, of an acre each. The first, by hoeing his crop early, while the weeds were only an inch high, accomplished the task with two days work, and the young plants then grew vigorously and yielded a heavy return. The second, being prevented by a deficiency of help, had to defer his hoeing

one week, and then three days more, by rainy weather, making ten days in all. During this time, the weeds had sprung up six to ten inches high, so as to require, instead of two days, no less than six days to hoe them; and so much was the growth of the crop checked at this early stage, that the owner had 150 bushels less on his acre, than the farmer who took time by the forelock. Another instance occurred with an intelligent farmer of this State, who raised two fields of oats on land of similar quality. One field was sown very early and well put in, and yielded a good profit. The other was delayed twelve days, and then hurried; and although the crop was within two-thirds of the amount of the former, yet that difference was just the clear profit of the first crop; so that with the latter, the amount yielded only paid the expenses.

Admitting that the farm is already purchased and paid for, it becomes an object to know what else is needed, and at what cost, before cultivation is commenced. If the buildings and fences are what they should be, which is not often the case, little immediate outlay will be needed for them. But if not, then an estimate must be made of the intended improvements and the necessary sum allotted for them. These being all in order, the following items, requiring an expenditure of capital, will be required on a good farm of 100 acres of improved land, that being not far from the size of a large majority in this State. The estimate will of course vary considerably with circumstances, prices, &c.

1. Live Stock.

The amount will vary with the fertility and products of the land, its quality, and situation with regard to market. The following will approximate the average on good farms, taken at the spring of the year, or commencement of work:

3 horses, at $80	$240
1 yoke oxen	75
8 milch cows, at $15	120
10 steers, heifers and calves	70
20 pigs, at $3	60
150 sheep, at $2	300
Poultry, say	5
Total	$870

2. Implements.

2 plows, fitted for work	$20 00
1 small plow, do	6 00
1 cultivator, best kind	7 00
1 drill barrow	5 00
1 roller	5 00
1 harrow	10 00
1 fanning mill	20 00
1 straw cutter	15 00
1 root slicer	8 00
1 farm wagon, with hay rack, &c.	70 00
1 ox-cart	50 00
1 horse-cart	45 00
1 double farm-harness	30 00
1 horse-cart harness	18 00
1 root-steamer, or boiler	20 00
1 shovel and one spade	2 50
3 steel-plate hoes	2 25
2 dung forks	2 25
3 hay forks	3 00
2 hand rakes	0 25
1 revolving horse-rake	8 00
2 grain cradles	8 00
2 scythes	4 00
1 wheelbarrow	4 00
1 pointed shovel	1 25
1 grain shovel, or scoop-shovel	1 25
1 pick	1 50
1 mall and wedges	2 50
2 axes	4 00
1 hammer	0 50
1 wood-saw	1 50
1 turnip-hook	0 75
1 hay-knife	3 00
2 apple-ladders, (for gathering,)	1 50
2 large baskets	1 25
2 hand baskets	0 50
1 tape-line, (for laying off land,)	2 00
2 sheep-shears	2 00
1 grindstone	3 00
1 steelyard, large, and one small	2 00
1 stable-lantern	0 50
1 currycomb, one brush	0 75
1 half-bushel measure	1 00
20 grain-bags	8 00
1 ox-chain	3 00
1 crowbar	2 00
1 sled and fixtures	30 00
Total	$437 00

Other articles might be included, as subsoil plow, sowing machine, &c. A thrashing machine is not named, as it is better to employ itinerant thrashers, and save capital. To the preceding amount ought to be added one-tenth the expense of fencing the farm, as fences need renewing at least once in ten years. Every farmer should also be supplied with a small set of carpenter's tools, which would cost about twelve dollars, for repairing implements in rainy weather, and other useful purposes. This set should include saw, hammer, augers, planes, adz, mallet, chisels, square, breast-bits, &c., and by the convenience and economy afforded, would soon repay their cost.

3. Seeds.

2½ bush.	clover seed,	for	10	acres	$15 00
2 "	corn,	"	6	"	1 00
30 "	potatoes,	"	2	"	7 00
3 lbs.	ruta baga seed,	"	1	"	1 50
2 "	field beet "	"	½	"	1 00
2 "	carrot "	"	½	"	1 00
30 bush.	seed wheat,	"	20	"	30 00
10 "	oats,	"	5	"	2 50
10 "	barley,	"	5	"	4 00
Total					$63 00

4. Labor.

Supposing the owner to labor with his own hands, as every owner should, so far as is consistent with a general superintendence of all parts, which would probably amount to one-half the time,—he would need besides through the season two men and one boy, and in the winter one man; during haying and harvest he would require two additional hands. The men, boarding themselves, could be had for fifteen dollars per month in summer, and twelve in winter; if boarded, the cost of their meals would make up the deficiency in wages to the same amount.—The expenditure needed then, would be,

2 hired men	8 months.	15	per month	$240 00
1 " boy	"	6	"	48 00
Day labor in harvest				32 00
Total				$320 00

5. Maintenance of Animals.

Cattle and sheep would need hay till fresh pasture, and horses hay, and also a good supply of oats till after harvest. All would be benefited by a liberal feeding of roots, including swine. The amount of all these supplies needed, would be about

7 tons of hay	$42 00
200 bushels of oats	50 00
400 " roots	50 00
Total	$142 00

RECAPITULATION.

Live stock	$870 00
Implements	437 00
Seeds	63 00
Labor	320 00
Maintenance of Animals	142 00
Total	$1,832 00

The amount of capital needed the first year, in stocking and conducting satisfactorily the operations of one hundred acres of improved land, several items being doubtless omitted.

If this is a larger sum than the young farmer can command, let him purchase only fifty acres, and reserve the rest of the purchase money which would be needed for the 100 acres, to commence with on the smaller farm; and he will scarcely fail to make more, than on a larger, with every part subjected to an imperfect hurrying, and irregular management. He may calculate perhaps on the returns of his crops in autumn, at least to pay his hands. But he must remember that the first year of farming is attended with many expenses which do not usually occur afterwards; which his crops may not repay, besides supporting his family and paying his mechanic's and merchant's bills. The first year must always be regarded with uncertainty; and it is better to come out at the end, on a moderately sized farm, well tilled, and in fine order, with money in pocket, than on a larger one, in debt; and hired hands, a class of men not to be disappointed and who ought not to be, waiting for their pay. There are a far greater number of farmers embarrassed and crippled by placing their estimates of expenses too low, than of those who swing clear and float freely by a full previous counting of cost.

Size of Farms.—After what has just been said, the cultivator will perceive in part the advantages of moderately sized farms for men in moderate circumstances. The great disadvantage of a superficial, skimming culture, is obvious with a moment's attention. Take the corn crop as an illustration. There are a great many farmers to my certain knowledge, whose yearly product per acre does not exceed an average of twenty-five bushels. There are other farmers whom I also well know, who obtain *generally* not less than sixty bushels per acre, and often eighty to ninety-five. Now observe the difference in the profits of each. The first gets 250 bushels from ten acres. In doing this, he has to plow ten acres, harrow ten acres, mark out ten acres, find seed for ten acres, plant, cultivate, hoe, and cut up ten acres, besides paying the interest on ten acres, worth from three to five hundred dollars. The other farmer gets 250 bushels from four acres at the farthest; and he only plows, plants, cultivates, and hoes, to obtain the same amount, four acres, which from their fine tilth and freedom from grass and weeds, is much easier done, even for an equal surface. The same reasoning applies throughout the farm.—Be sure then, to cultivate no more than can be done in the best manner, whether it be ten, fifty, or five hundred acres. A friend who owned a four hundred acre farm, told me that he made less than his next neighbor, who had only seventy-five. Let the man who applies a certain amount of labor every year to his farm, reduce its dimensions until that labor accomplishes everything in the very best manner. He will doubtless find that the amount of land will thus become much smaller than he supposed, more so than most would be willing to reduce it; but on the other hand, the nett proceeds from it will augment to a greater degree than perhaps could possibly be believed.

But let me not be misunderstood. Large farms are by no means to be objected to, provided the owner has capital enough to cultivate every part as well as some of our best small ones are cultivated.

As an example of what may be obtained from a small piece of land, the following products of fifty acres are given, and are not more than I have known repeatedly to be taken from good land by several thorough farmers:

10 acres	wheat,	35 bush.	per acre, at	$1.00,	$350
5 "	corn,	90 "	"	.40,	180
2 "	potatoes,	300 "	"	.30,	120
1 "	ruta-bagas,	800 "	"	.10,	80
6 "	wint. apples,	250 "	"	.25,	375
6 "	hay,	2½ tons	"	6.00	90
10 "	pasture, worth				60
5 "	barley,	40 bush.	"	.40	80
5 "	oats,	50 "	"	.20	50

Total products of fifty acres of very fine land, $1,385

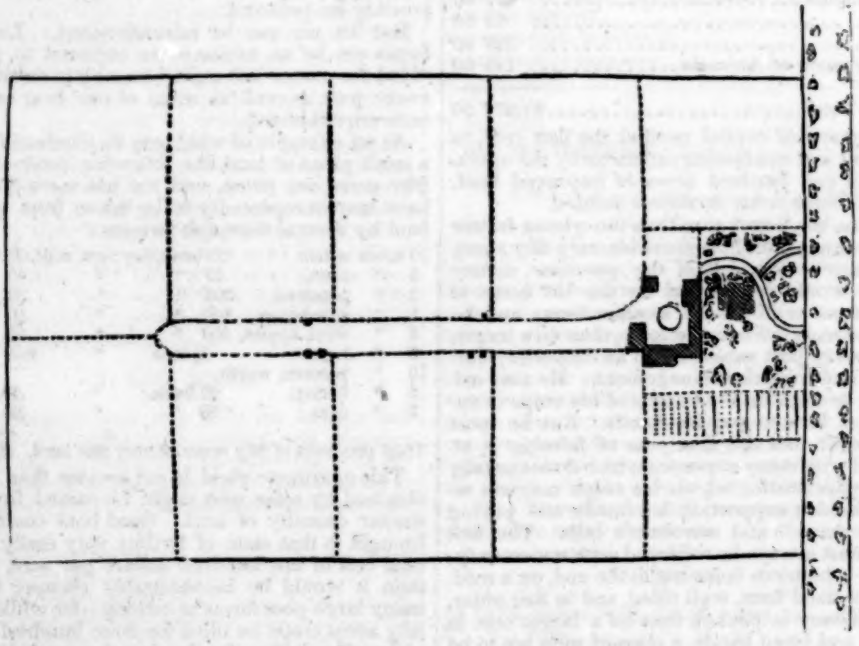
This aggregate yield is not greater than that obtained by some who might be named from a similar quantity of land. Good land could be brought to that state of fertility very easily at a total cost of one hundred dollars per acre, and then it would be incomparably cheaper than many large poor farms at nothing; for while the fifty acres could be tilled for three hundred and eighty-five dollars, leaving one thousand dollars nett profits, large poor farms hardly pay the work spent upon them. One proprietor of such a farm declared—"It takes me and my hired man all summer at hard work to get enough to pay him only."

Laying out Farms.—This department is very much neglected. The proper disposition of the different fields, for the sake of economy in fencing, for convenience of access, and for a full command of pasture and protection of crops at all times, has received comparatively little attention from our agricultural writers and from farmers.

Many suppose that this business is very quickly disposed of; that a very few minutes, or hours at most, will enable a man to plan the arrangement of his fields about right. But this is a great error. Even when a farm is of the simplest form, on a flat uniform piece of ground, many things are to be borne in mind in laying it out. In the first place, we all know that the *fencing* of a moderately sized farm costs many hundred dollars. It is very desirable to do it well, and use at the same time as little material as possible. To do this much will depend on the shape of the fields. A certain length of fence will enclose more land in the form of a *square*, than in any other practicable shape. Hence fields should approach this form as nearly

as possible. Again, the disposition of lanes is a matter of consequence, so as to avoid unnecessary length and fencing, and occupy the least quantity of ground.

But these rules may be materially affected by other considerations. For instance, it is very desirable that land of similar quality may be in the same enclosure. Some may be naturally too wet for any thing but meadow or pasture; some may be much *lighter*, and susceptible of plowing, while others are not; some may be naturally sterile, and need unusual manuring, with green crops. All these should, as far as practicable, be included each in its own separate boundary. The situation of surface-drains, forming the boundaries of fields, may influence their shape; facilities for irrigation may have an essential bearing; convenience for watering cattle is not to be forgotten. Where, in addition to all these considerations, the land is hilly, still more care and thought is required in the subdivision, which may possibly require years of experience; but where fixed fences are once made, it is hard to remove them; hence a previous thorough examination should be made. A farm road, much used for heavy loads, should be made hard and firm, and cannot be easily altered; it should consequently be exactly in the right place, and be dry, level and short—the shape of adjoining fields even conforming to these requisitions; but a road little used should not interfere with the outlines of fields.



A specimen of laying out a farm is given in the preceding plan. It is of the very simplest kind, or a right-angled parallelogram, on nearly level land—a form that often occurs. It lies on one side of a public road, which is lined with forest trees. The middle enclosure on the road contains the dwelling, the barn, and other outbuildings. It is planted with trees for shade, ornament, and domestic enjoyment—not set "all in a row," but in the graceful or picturesque style which distinguishes a beautiful natural landscape. On one side are the fruit, kitchen, and flower gardens—the lot containing them being oblong, to separate certain portions of the fruit garden for *pigs*—the sovereign remedy for the curculio; the orchard may occupy the lot adjoining. The remainder of the farm is divided into fields nearly square, each being entered from the lane by a good gate. These fields may be increased or lessened in size without altering the position of the lane. They should always be sufficiently numerous to admit a good rotation, and to separate at all times the pasture from the tillage land.

In laying out a farm with a very uneven surface, or irregular shape, it would be best to draw, first, a plan adapted to smooth ground, as the one just given; and then vary the size and shape of the fields, the distance of the lane from the centre, its straightness, &c., according to the circumstances of the case.

Fences.—The kind of fence used, and the material for its construction, must depend on circumstances and localities. A good fence is always to be preferred to an imperfect one; though it cost more, it will more than save that cost, and three times the amount in vexation besides, by keeping cattle, colts, and pigs out of fields of grain. A thriving farmer, whose whole land, except a small part with stone wall, is enclosed by common rail fence, with upright cedar stakes and connecting caps at the top, finds that it needs renewing once in six years. He accordingly divides his whole amount of fences into six parts, one of which is built new every year. All is thus kept systematically in good repair. Stone walls, if set a foot below the surface to prevent tumbling by frost, are the most durable fence. Hedges have not been sufficiently tried. The English hawthorn is not well adapted to our hotter and drier climate; and though sometimes doing well for a time, is not to be depended on. The buckthorn in New-England, and the Newcastle and Washington thorns in Pennsylvania and Delaware, have succeeded finely.

Gates.—Every field on the farm should be entered by a good self-shutting and self-fastening

gate. A proper inclination in hanging will secure the former requisite, and a good latch, properly constructed, the latter. Each field should be numbered, and the number painted on the gate-post. Let the farmer who has *bars* instead of gates, make a trial of their comparative convenience, by taking them out and replacing them without stopping, as often as he does in one year on his farm, say about six hundred times, and he cannot fail to be satisfied which is the cheapest for use.

BUILDINGS.—These should be as near the centre of the farm as other considerations will admit. All the hay, grain, and straw, being conveyed from the fields to the barn, and most of it back again in manure, the distance of drawing should be as short as possible. This will, also, save much traveling of men and of cattle, to and from the different parts of the farm. The buildings should not, however, be too remote from the public road; and a good, dry, healthy spot should be chosen. The dwelling should be comfortable but not large—or it should, rather, be adapted to the extent of the lands. A large, costly house, with small farm and other buildings, is a bad indication of management. The censure of the old Roman should be avoided, who, having a small piece of land, built his house so large that he had less occasion to plow than to sweep.

The barn and out-buildings should be of ample extent. The barn should have space for hay, grain, and straw. It is a matter of great convenience to have the straw for littering stables, housed, and close at hand, and not out of doors, under a foot of snow. There should be plenty of stables and sheds for all domestic animals. This provision will not only save one-third of the fodder, but stock will thrive much better. Cows will give much more milk—sheep will yield more and better wool—and all will pass through the winter more safely. The wood-house near, or attached to the dwelling, should never be forgotten, so long as comfort in building fires, and economy in the use of fuel, are of any importance.

A small, cheap, moveable horse-power should belong to every establishment, to be used in churning, sawing wood, driving washing machine, turning grindstone, cutting straw, and slicing roots.

There should be a large root cellar under the barn, into which the cart may be *dumped* from the outside. One great objection to the culture of ruta-bagas and beets, in this country,—the difficulty of winter keeping,—would then vanish.

Both barn and house cellars should be well coated on the bottom and sides, with water-lime-mortar; which is a very cheap and effectual way to exclude both water and rats.

CHOICE OF IMPLEMENTS.—Of those which are much used, the very best only should be procured. This will be attended with a gain every way. The work will be easier done and it will be better done. A laborer who, by the use of a good hoe for one month, can do one quarter more each day, saves, in the whole time, an entire week's labor.

CHOICE OF ANIMALS.—The best of all kinds should be selected, even if costing something more than others. Not "*fancy*" animals, but those good for use and profit. Cows should be productive of milk, and of a form adapted for beef; oxen, hardy, and fast-working; sheep, kept fine by never selling the best; swine, not the *largest* merely, but those fattening best on least food. A Berkshire, at 200 pounds, fattened on 10 bushels corn, is better than a "land pike" of 300 fattened on 50 bushels.

Having now taken some notice of the necessary items for commencing farming, it remains to glance a little at

SOILS AND THEIR MANAGEMENT.

Soils are of various kinds, as heavy and light, wet and dry, fertile and sterile. They all require different management, in a greater or less degree.

Heavy soils are often stronger and more productive than light; but they require more labor for pulverization and tillage. They cannot be plowed when very wet, nor so well when very dry. Although containing greater or less portions of clay, they may be distinguished, as a class, from lighter soils, by the cloddy surface the fields present after plowing in dry weather; by their cracking in drouth; and by their adhesiveness after rains.

Sandy and gravelly loams, also contain clay, but in smaller quantity; so that they do not present the cloddiness and adhesiveness of heavy soils. Though possessing generally less strength than clay soils, they are far more easily tilled, and may be worked without difficulty in wet weather; they do not crack or bake in drouths. Indian corn, ruta-bagas, and some other crops, succeed best upon them. Sandy soils are very easily tilled, but are generally not strong enough. When made rich, they are fine for some succulent crops.

Peaty soils are generally light and free, containing large quantities of decayed vegetable matter. They are made by draining low and swampy grounds. They are fine for Indian corn, broom corn, barley, potatoes, and turnips. They are great absorbers, and great radiators of heat; hence they become warm in sunshine, and cold on clear nights. For this reason they are peculiarly liable to frosts. Crops planted upon them must, consequently, be put in late—after spring frosts are over. Corn should be of early varieties, that it may not only be planted late, but ripen early.

Each of these kinds of soil may be variously improved. Most of heavy soils are much improved by draining; open drains to carry off the surface water, and covered drains, that which settles beneath. An acquaintance covered a low, wet, clayey field with a net work of underdrains, and from a production of almost nothing but grass, it yielded the first year forty bushels of wheat per acre—enough to pay the expense; and admitted of much easier tillage afterwards. Heavy soils are also made lighter and freer by manuring; by plowing under coatings of straw, rotten chips, and swamp muck; and in some rare cases, by carting on sand—though this is usually too expensive for practice. Subsoil plowing is very beneficial, both in wet seasons and in drouth; the deep, loose bed of earth it makes, receiving the water in heavy rains, and throwing it off to the soil above, when needed. But a frequent repetition of the operation is needed, as the subsoil gradually settles again.

Sandy soils are improved by manuring, by the application of lime, and by frequently turning in green crops. Leached ashes have been found highly beneficial in many places. Where the subsoil is clayey, which is often the case, and especially if marly clay—great advantage is derived from shoveling it up and spreading it on

the surface. A neighbor had twenty bushels of wheat per acre on land thus treated, while the rest of the field yielded only five.

MANURES.—These are first among the first of requisites in successful farm management. They are the strong moving power in agricultural operations. They are as the great steam engine which drives the vessel onward. Good and clean cultivation is, indeed, all-important; but it will avail little without a fertile soil; and this fertility must be created, or kept up, by a copious application of manures. For these contribute directly, or assist indirectly, to the supply of nearly all the nourishment which plants receive; it is these, which, produced chiefly from the decay of dead vegetable and animal matter, combine most powerfully to give new life and vigor; and thus the apparently putrid mass, is the very material which is converted into the most beautiful forms of nature; and plants and brilliant flowers spring up from the decay of old forms, and thus a continued succession of destruction and renovation is carried on through an unlimited series of ages.

Manures possess different degrees of power, partly from their inherent richness, and partly from the rapidity with which they throw off their fertilizing ingredients, in assisting the growth of plants. These are given off by solution in water, and in the form of gas; the one as liquid manure, which, running down, is absorbed by the fine roots; and the other as air, escaping mostly into the atmosphere, and lost.

The great art, then, of saving and manufacturing manure, consists in retaining and applying to the best advantage, these soluble and gaseous portions. Probably more than one-half of all the materials which exist in the country, are lost, totally lost, by not attending to the drainage of stables and farm yards. This could be retained by a copious application of straw; by littering with saw-dust, where saw-mills are near; and more especially by the frequent coating of yards and stables with dried peat and swamp muck, of which many parts of our State furnish inexhaustible supplies. I say *dried* peat or muck, because if it is already saturated with water, of which it will often take in five-sixths of its own weight, it cannot absorb the liquid portions of the manure. But if it will absorb five-sixths in water, it will, when dried, absorb five-sixths in liquid manure, and both together form a very enriching material. The practice of many farmers, shows how little they are aware of the hundreds they are every year losing by suffering this most valuable of their farm products to escape. Indeed, there are not a few who carefully, and very ingeniously, as they suppose, place their barns and cattle yards in such a manner on the sides of hills, that all the drainage from them may pass off out of the way into the neighboring streams; and some one mentions a farmer, who, with preëminent shrewdness, built his hog pen directly across a stream, that he might at once get the cleanings washed away, and prevent their accumulation. He of course succeeded in his wish; but he might, with almost equal propriety, have built his granary across the stream, so as to shovel the wheat into the water when it increased on his hands.

The loss of manure by the escape of gas is often very great. The proof of this was finely exhibited by Humphrey Davy, in an experiment, performed by filling a large retort from a heap of fermenting manure, placing the beak among the roots of some grass. Nothing but vapor left the vessel, yet in a few days the grass exhibited greater luxuriance round the beak of the retort than any of the surrounding portions. Hence the superiority of unfermented manure—the rich portions are not yet lost. And hence, too, the importance of preventing this loss by an immediate application and plowing into the soil, and also by mixing it in composts with muck, peat, swamp mud, and even common earth in a dry state,—and of preventing its escape from stables and yards, by a daily strewing with dried peat, lime or plaster.

The superiority of unfermented manure has just been mentioned, which is by many doubted. But the very facts on which these doubts rest, only prove its efficacy. For, they say, "I have always found fresh manure to be attended with little effect the first year, while it yet remains fresh; but afterwards, when fermentation and decay had taken place, the benefit was great and striking." But here is the proof at hand, that not until the rich, soluble and gaseous parts had well penetrated and been absorbed by the soil, was their powerful and invigorating influence exerted upon the growing plants. Fresh manure is generally in a state not readily mixed with soils; it is thrown into large lumps over the surface, some of which are plowed in and others not, but none of them prove of immediate use to the crops. But on the other hand, fermented manure, from its ready pulverization, admits of an easy admixture. Let fresh manure be thoroughly ground down and worked into the soil by repeated harrowings, and two or three plowings, and its influence will be like magic.

Swamp muck has often been spoken of as manure. But those who expect great and striking results from its application, will be disappointed, as the writer has been. Even with ashes, it is much less powerful than stable manure, not only because it possesses less inherent richness, but because it has less soluble parts, and consequently imparts its strength more slowly to growing plants. But this quality only makes it the more enduring. By decoction in water, vegetable mold loses a small portion of its weight by solution; but if the remaining insoluble portion is exposed to air and moisture a few months, another part may be again dissolved. Thus, peat, muck and all decayed vegetable fibre, becomes a slow but lasting source of nourishment to plants.

But it is, when shoveled out and dried, to be mixed with farm-yard manure, as a recipient for its evanescent parts, that peat or muck becomes preëminently valuable. Some parts of the State abound with inexhaustible supplies in almost every neighborhood; many land owners have from twenty to a hundred thousand cubic yards on their farms, lying untouched, while half-starved crops are growing in the adjacent fields. There are whole counties so well supplied with it, that if judiciously applied, it would doubtless double their aggregate products.

All neat farming, all profitable farming, and all satisfactory farming, must be attended with a careful saving of manures. The people of Flanders have long been distinguished for the neatness and excellence of their farms, which they have studied to make like gardens. The care with which they collect all refuse materials which may be converted into manure and increase their composts, is one of the chief reasons of the cleanliness of their towns and resi-

dences. And were this subject fully appreciated and attended with a corresponding practice generally, it would doubtless soon increase by millions the agricultural products of the State.

But there is another subject of scarcely less magnitude. This is a systematic

ROTATION OF CROPS.—If manuring is the steam engine which propels the vessel, rotation is the rudder which *guides* it in its progress.—Unlike manuring, rotation does not increase the labor of culture; it only directs the labor in the most effective manner, by the exercise of judgment and thought.

The limits of this paper do not admit of many remarks on the principles of rotation. The following courses, however, have been found among some of the best adapted to our State:

I..1st *year*—Corn and roots well manured;
2d *year*—Wheat, sown with clover seed, 15 lbs. per acre;
3d *year*—Clover, one or more years, according to fertility and amount of manure at hand.

II..1st *year*—Corn and roots, with all the manure;
2d *year*—Barley and peas;
3d *year*—Wheat, sown with clover;
4th *year*—Clover, one or more years.

III..1st *year*—Corn and roots, with all the manure;
2d *year*—Barley;
3d *year*—Wheat, sown with clover;
4th *year*—Pasture;
5th *year*—Meadow;
6th *year*—Fallow;
7th *year*—Wheat;
8th *year*—Oats, sown with clover;
9th *year*—Pasture, or meadow.

The number of fields must correspond with the number of the changes in each course; the first needing three fields to carry it out, the second four, the third nine. As each field contains a crop each, in the several successive stages of the course, the whole number of fields collectively comprise the entire series of crops every year. Thus in the last above given, there are two fields of wheat growing at once, three of meadow and pasture, one of corn and roots, one of barley, one of oats, and one in summer fallow.

OPERATIONS IN THE ORDER OF TIME.—The vital consequence of doing every thing at the right season, is known to every good farmer.—To prevent confusion and embarrassment, and keep all things clearly and plainly before the farmer at the right time, he should have a small book to carry in his pocket, having every item of work for each week, or each half month, laid down before his eyes. This can be done to the best advantage to suit every particular locality and difference of climate, by marking each successive week in the season at the top of its respective page. Then as each operation severally occurs, let him place it under its proper heading; or, if out of season, let him place it back at the right time. Any proposed improvements can be noted down on the right page. Interesting experiments are often suggested in the course of reading or observation, but forgotten when the time comes to try them. By recording them in such a book under the right week, they are brought at once before the mind. Such an arrangement as this will prevent a great deal of the confusion and vexation too often attendant on multifarious cares, and assist very essentially in conducting all the farm work with clock-work regularity and satisfaction.

In reviewing the various items which are most immediately essential to good farm management, some of the most obvious will be—capital enough to buy the farm and to stock it well; to select a size compatible with these requisites; to lay it out in the best manner; to provide it well with fences, gates, and buildings; to select the best animals and the best implements to be had reasonably; to bring the soil into good condition, by draining, manuring, and good culture; to have every part under a good rotation of crops; and every operation arranged, so as all to be conducted systematically, without clashing and confusion. An attention to all these points would place agriculture on a very different footing from its present condition in many places and with most farmers. The business then, instead of being repulsive, as it so frequently is, to our young men, would be attended with real enjoyment and pleasure.

But in all improvements, in all enterprises, the great truth must not be forgotten, that success is not to be expected without diligence and industry. We must sow in spring, and cultivate well in summer, if we would reap an abundant harvest in autumn. When we see young farmers commence in life without a strict attention to business, which they neglect for mere pleasure, well may we in imagination see future crops lost by careless tillage—broken fences, unhinged gates, and fields filled with weeds—tools destroyed by heedlessness, property wasted by recklessness, and disorder and confusion triumphant; and unpaid debts, duns, and executions, already hanging over the premises. But, on the other hand, to see cheerful-faced, ready-handed industry, directed by reason and intelligence, and order, energy, and economy, guiding the operations of the farm—with smooth, clean fields, and neat trim fences—rich, verdant pastures, and fine cattle enjoying them, and broad waving meadows and golden harvests, and waste and extravagance driven into exile, we need not fear the success of such a farmer—debts cannot stare him in the face, nor duns enter his threshold.

It is such enterprise as this, that must place our country on a substantial basis. Agriculture in a highly improved state, must be the means, which next to the righteousness which truly exalts a nation, will contribute to its enduring prosperity. All trades and commerce depend on this great art as their foundation. The cultivation of the soil and of plants was the earliest occupation of man; it has in all ages been his chief means of subsistence; it still continues to furnish employment to the great majority of the human race. It is truly the great art of peace, as during wars and commotions it has languished and declined, but risen again in strength and vigor when men have lived at peace with each other—it has then flourished and spread, converted the wilderness into life and beauty, and refreshed and adorned nature with embellished culture. For its calm and tranquil pleasures—for its peaceful and healthful labors—away from the fretful and feverish life of crowded cities,—"in the free air and beneath the bright sun of heaven,"—many, who have spent the morning and noon of their lives in the anxious cares of commercial life, have long sighed for a scene of peace and quietude for the evening of their days.

THE EIGHTEENTH ANNUAL FAIR OF THE AMERICAN INSTITUTE.

We learn with great pleasure that the Institute is already engaged in making preparations for the Fair in October next. Its exertions have been unremitting in the endeavor to give to these Annual assemblages of the improved productions of Agriculture and the Mechanic Arts, every attraction that their high national importance demands. The remarkable ingenuity and ceaseless action of our People gains from year to year with wonderful rapidity. May we not then fairly anticipate a higher treat from the next Fair than we have ever had before? The Institute, unaided and unsustained except by its own energy, had a number of visitors at its last Fair, said to be one-half as great as that of the great Fair of Paris, which is held *but once in five years*—and to which the French Government lends its powerful aid, by causing the whole kingdom to be examined by commissioners, for the selection of the most interesting articles for the exhibition, and *paying the expenses of their transportation to Paris.*

The number of citizens who visited the last Fair of the Institute, was about *two hundred and fifty thousand*, while Paris contains about *three times* the population of New-York.

Niblo's Garden is engaged for the central exhibition. Fields for the plowing and spading matches will be selected, as convenient as possible, for all classes of citizen visitors.

The Cattle Show will be held on the Fifth-avenue at Twenty-third and Twenty-fourth-streets; a spot affording space and convenience for the exhibition and for the visitors. Arrangements are in progress for premiums upon a much larger scale, for high-bred cattle—for fat bullocks—for working oxen—milch cows—for sheep of the best blood—for fat mutton, &c.—and for horses for draft, race, &c., which it is to be hoped will insure an exhibition worthy of the American Institute.

This opportunity for buyers and sellers of fine stock of every sort, should not be overlooked by them. Those who wish to find out without trouble, all collected together, specimens of the best home-made articles of every kind—will have the advantage of seeing them on one spot at the Fair. Inventors will be anxious to examine the results of genius applied to various productions since the last Fair, and to show to thousands their own improved works.

The Institute will give larger premiums than heretofore to a given number of the most new and useful inventions and improvements. During the last year, the Institute has distributed large numbers of new and valuable seeds—and on the condition of receiving a part of their produce for the purpose of further distribution—and some of their products for the Agricultural and Horticultural Exhibition. This will be a guarantee for a grand display.

It is desired to afford every encouragement to the full exertion of that capacity for invention and improvement which has already enabled our Country to compete with all the world in such matters.

One American has, by his genius, increased twenty-fold the Cotton crop of the planting States. Another is remembered by the wonderful success of Steam Navigation, destined to revolutionize the Commerce of the world.—These efforts of the Institute to increase the industry and cherish the genius of our countrymen, ought to stimulate the good feeling, the national pride of every great man who loves his country, to lend his aid in carrying into the fullest execution the noble object in view; and an example is already before us in the exertions of the Sovereigns and Nobles of Europe, which surely cannot be lost upon this Republic. The ambition to surpass them in all the arts which give happiness to mankind should be found strong and enduring.

In the noble competition now existing throughout the civilized world, to foster arts, which it behoves Republics, above all governments, to cherish and protect, America must not allow herself to be outdone.

The third National Convention of Farmers and Gardeners and Silk Culturists is contemplated to meet during the Fair.

The Home Department for Agriculture so earnestly pressed by General Washington, at the last session of Congress under his Administration, will again be a subject of the most serious consideration by the Convention—and every effort will be made to awaken the attention of the Nation to that subject, and also special attention will be paid to the culture of Silk, to enable us as soon as practicable to realize the benefit of another great National Agricultural staple

FALL PLOWING:

UNDER WHAT CIRCUMSTANCES TO BE RECOMMENDED.

ON THE ILL EFFECTS OF PLOWING LAND WHEN WET.

THERE are few points of Husbandry, about which Farmers differ more in practice, than about Fall Plowing; and this difference, like most others, occurs from want of reflection on the *principles* that should govern the particular case—or rather, we might say, from want of knowledge of the principles, or *reasons* involved in every agricultural problem. You shall sometimes see a farmer turning his "glebe" at every odd time he can catch of open weather, in Fall and Winter; while another, his next neighbor, does not strike a furrow; and yet both may be right, for both may have been taught by experience that his system is the better one of the two. But were they to exchange estates, they would, too probably, each carry his practice along with him, because his action had been the result of habit rather than of investigation; and so they would proceed until, after some years of costly experiment, each would find that, in changing his land he should have changed habits also. The truth is, that whether land should be plowed up in autumn and exposed for the melioration to the winter's frost, or whether left undisturbed under whatever coating it may be wearing, depends on various circumstances, and especially on the natural texture and composition of the soil. These circumstances are so well explained in the following Essay, that we have concluded to preserve it in the Journal of Agriculture. The reader will find in it, also, observations that cannot be too well remembered, in reprobation of one of the grossest blunders that a Farmer can commit—that of *plowing his land when wet.* We have long been so well satisfied, from personal observation as well as by the common-sense view of the case, of the very pernicious effect of stirring land when wet, not only on the succeeding crop, but on the land itself—effects from which it sometimes does not entirely recover for years—that we take the first occasion, in a sense of duty, to impress it upon the reader, by the following forcible remarks on it in connexion with winter plowing. The rationale, in both cases, is here made apparent:

HOW TO AFFORD THE NECESSARY SUPPLY OF AIR TO THE ROOTS OF PLANTS.

BY MR. J. MAINE, BROMPTON.

THE breaking up, or turning the surface of cultivated land, either by the plow, spade, or hoe, for the reception of seeds or plants, is a process so universally practiced and indispensable for the well-being of the crops intended to be raised thereon, that it may be deemed incredible that such a common and simple affair should not be universally understood. And yet it cannot be denied that many and frequent mistakes are committed in this matter, and these must proceed either from indolence or ignorance.

As the surface of the earth is the natural station for the generality of plants, and where they obtain the necessary elemental food requisite for their development and maturation, certain conditions of the said surface are absolutely necessary. Humidity, heat, and air, in due proportions, are indispensable, both to the fibrous roots which are extended in the earth and to the head which is expanded in the air. There is more danger, however, from an excess of moisture than from the extremes of either heat or air; because, when the soil is saturated with water, the access of the genial air and its gaseous properties is excluded, and the delicate fibres, imprisoned and choked, it may be said for want of breath, must, in such a case, necessarily languish. That a porous soil is requisite for the free growth of every plant is an axiom in cultivation, and on this axiom all our operations of plowing, trenching, digging, &c., are founded; and, that no excess of water should at any time remain to chill, sodden, and consolidate the staple, draining in all its branches and modifications is had recourse to.

Soils are various in quality, and particularly in texture and consistency. The success of crops appears to depend as much on the texture of the land as upon any other property. For, where air and rain can permeate freely, a constant supply of both aqueous and gaseous nourishment is afforded, independently altogether of the richness of the soil, whether natural or artificial. While, on the other hand, if the soil be compact, baked hard by drouth, in consequence of its having been previously labored or stirred when too wet, no plant can possibly flourish. The conclusion, therefore, is, that the soil for any kind of crop should never be impervious to air from being saturated with water, nor impervious to both air and water from its dry adhesiveness.

Sandy soils, upon a gravelly or chalky subsoil, are never liable to be drenched with water but only for a very short time after heavy rain, or sudden thaw when snow is on the ground. All the water absorbed by such a soil sinks deep into the subsoil, and far below the roots of corn or any agricultural plant on the surface. Such a soil needs neither draining nor subsoil plowing. Neither does it ever require to be exposed to the frosts of winter, or any kind of treatment by implements to produce ameliora-

tion. It is almost always in such an open friable state that it may be plowed and sown at any season, without risk of being plowed and harrowed into the condition of mud, or of being poached into the state of mortar by the horses' feet.

In some countries there are large tracts of such land, and on these farmers are generally fortunate men. The culture is easy, and executed at a moderate expense. The crops of turnips are heavy; and if, besides the ordinary supplies of dung and tail-dress, the farmers can manage to give their fields a liberal coat of marl or reducible clay every eighth or tenth year, the heart and fertility of the staple is maintained unimpaired for ages.

In such descriptions of land, however, it often happens that beds of clay lie alternately with those of sand at different depths beneath the surface. These beds of clay, if the general surface of the farm or field lies sloping, crop out at different distances below each other and above each the surface staple will be either occasionally or constantly wet. If a pasture, rushes will appear accompanied by the worst grasses, and herbage produced that will certainly rot sheep, especially if introduced from drier pasturage. If the land be arable, the crops raised thereon will be unequal; on the wet places, the corn will be either too rank and inferior, or fail altogether. In such cases, efficient under-ground drainage is the remedy to get rid of the superfluous moisture, either by gently-falling diagonal or direct channels. The proper direction of the drains depends on the depth, extent, and inclination of the beds of clay, and it is well to have a professional man to stake them out, unless the tenant has a sufficient knowledge of geology himself. It is surprising to those who know but little of the nature of the various strata of the earth's surface, how easy it is in some cases to get rid of surface water. For instance, if there be wet and dry places on the same field, the owner may be assured that a bed of clay, or other kind of earth impervious to water, lies beneath the wet, and a porous subsoil beneath the dry places. A drain of sufficient depth opened (and filled nearly to the surface with stones or loose gravel) from the wet to the dry places, will certainly render the whole dry. In my own practice, and acting on this principle, I have been in many cases very successful in laying arable fields dry. Two cases I may mention as examples:—A field of eleven acres, of a fine loam, suitable for wheat, beans, or indeed any other crop, had a hollow near one of the ends, which was every winter filled with water, and ruinous to wheat or grass, very frequently to the extent of between two and three acres. This I resolved to drain. A neighboring farmer predicted that the attempt would be a failure; because his father, when tenant, sunk a shaft to the depth of above seventy feet, in the lowest dip of the hollow, and filled it with stones, expecting that this would form a *swallow* for all the rain and melted snow retained by the hollow. But this expectation was not realized; the water first filled the pit, and then flowed over the land as before. The cause was easily comprehended: the pit did not reach to the chalk-rock, nor did it pierce through any porous stratum; its loamy sides and bottom were perfectly water-tight, so that little or none could escape.

My plan was different. I saw marks in an adjacent field of where chalk had been drawn at some former time; thither I opened a stone-filled drain below the plowshare, from the lowest dip of the hollow; and, when the water had accumulated, it ran towards the old chalk-pit; but totally disappeared long before arriving at the place, and thus was a valuable field laid dry. Another arable field contained a pond, which very often overflowed its boundaries. Lower ground was at the distance of half-a-mile; and the expense of forming so long a drain prevented all attempts to get rid of the annoyance. I advised the tenant to dig a deep drain from the pond up into a high bank of gravel, into which the water oozed away immediately; and ever after carried off all excess. By this simple expedient a large piece of excellent land was reclaimed and brought into a regular course of culture at a very trifling expense.

It is by such means that land, naturally friable and loose in texture, may be relieved of superabundant water, and give admittance to the necessary supplies of air at all times. I have already observed that sandy soils require no exposure for the purpose of reducing adhesiveness either by the action of frost or machinery; and yet we often see such land carefully fallowed up in the autumn, and even laid in ridges, to receive the advantages supposed to be imparted to it by the contact of frosty air. That such an idea, namely, that arable land is benefited by exposure to frosty air, has been long entertained, is evident from what has been written on the subject by old authors. Even our amiable poet, Thomson, in one of the flights of his pregnant imagination, says—

> "The frost-concocted glebe
> Draws in abundant vegetable soul,
> And gathers vigor for the coming year."—*Winter.*

Showing that the notion was held by philosophers as well as cultivators; and, at the present time, there are many among the latter who mistake the disrupting, ameliorating effects of frost on tenacious soils for its enriching property, which they imagine is communicated to all soils. But this is a mistake; the less light sandy soils are exposed to the sun and air, the less are they exhausted of their humid riches. Their best qualities are as liable to be washed away by winter rains as dissipated by the summer sun; and, therefore, they cannot be too close and level during winter if it is intended that they should be cropped in the spring.

I have often noticed the mismanagement of a field of light soil by the following culture:—It was fallowed, cleaned, dunged, plowed, and sown with tankard turnips about the middle of June. The crop was abundant, and a flock of full-mouthed wethers was put on in the end of September. Within a month, the turnips were eaten off, and the field was plowed into single 'bout ridges to lie for the winter. In April the ridges were plowed and harrowed down, and barley and seeds were sown. Both rose well; but, throughout the summer growth, the ridges were as visible in the crop as they were after the plow, the centres of the ridges bearing the finest and strongest plants of the crop. And the reason was obvious: the centres of the ridges came up fresh, moist, and mellow, while the intervals were filled with the bleached dry crests of the ridges, which, though more pulverized, were much less fertile and stimulating than the fresher portions of the surface. Hence it was quite evident that, if the whole field had been permitted to lie undisturbed till the spring, the crop would have risen more equally and

much more vigorously. I have seen fields of similar soil sown with oats after wheat—a bad custom certainly, and as badly executed—the wheat-stubble being plowed in October, and the oats sown and harrowed in February, whereas, had the wheat-stubble been only scuffled off and harrowed to bring up a crop of seed weeds, and so rested till February or March, and then plowed and sown, the crop of oats would have been much more abundant both in straw and corn than by the former method.

Here it is necessary to observe that, as I set out with showing how absolutely necessary an open porous soil is to all vegetation, and no measures being recommended in the above statements for that purpose, but rather the contrary, it is to be remembered that I have been treating of sandy land, which is at all times, except when too wet, sufficiently porous for the reception of air. But in other descriptions of soil, such as that whose particles are minute and have a tendency to adhere closely together, either by gravitating subsidence or by a flow of rain water—in such a case, every practicable means must be taken to alter and break this solidifying nature of the staple, in order to admit a free range of air and the gases it contains.

There are many intermediate descriptions of soil between sand and clay, and all of these, according as they approach to the one extreme or the other, require a peculiar management, But the grand object is to work the soil in such a manner that it shall always be pervious to air, rain, and all atmospheric influences. And this result is obtained by the *timely* application of the implements rather than by the efficiency of the implements themselves. The soil is sometimes in a fit state to be worked, and very often is not. Under such circumstances the judgment of the cultivator must be exercised. The condition of the land depends very much on the season and character of the weather; and on this account seed-time cannot always be commenced at the times which would be most convenient to the farmer. In such a case, he must wait until the land is in right order to be stirred; and that state is, when it is neither too wet nor too dry. I am alluding to land which has either been thoroughly drained or which needs no draining, and is only affected by the season, whether very wet or very dry. But as the exact time cannot always be hit upon, it is better that the arable surface be rather too dry than too wet when moved. Because, if too dry, it may be reduced to the necessary fineness by labor, and will then be in the best possible state for the reception of seeds; the interstices between the particles of the soil being filled with air, amid which the imbedded seeds germinate in the greatest vigor. But if the soil be too wet when moved, and especially by the pressing or pushing action of the plow, it acquires, from the excess of water, a state of fluidity like mortar, and settles down again so compactly, that no seed laid therein can be developed in a healthy condition, in consequence of the want of air.

That the contact of air to the roots of plants was always considered necessary, is evident from old writings; but the fact has never been so generally noticed and acted upon as it is now. The first and most striking instance confirmatory of the opinion was the fact of large full-grown ornamental forest trees having been killed by their roots being too deeply covered up with earth when levelling lawns; and planters and gardeners have been long aware of the injurious effects of planting as well as sowing too deep. The same individuals formerly fancied that their prepared composts, for exotic or favorite flowering plants, could not be too finely sifted for their reception, whether in pots, or in the open ground. But slovenly or careless management in these particulars showed that too much nicety of execution was not at all necessary. Sifting the composts was given up, and composts made up chiefly of nodules of turf, broken stone, brick rubbish, &c. are substituted with evident success; and the cause is obvious—when the compost is sifted, it becomes a solid mass, especially after it is watered, and repulsive of all atmospheric influences, whereas among the loose materials, a considerable body of air reposes, and in this the more active fibres extend themselves much more luxuriantly than they do in compact soil.

The gardener's improved practice is only another proof how much a porous soil and presence of air are necessary to the roots of plants; and yet we often see the most luxuriant vegetation produced by soils which are apparently very close in texture; viz. alluvial soils and fertile clays. Both these descriptions of soil being composed of the finest atoms, become exceedingly close and compact if undisturbed; but when plowed, or otherwise moved periodically, the stirred portion attracts as much of the qualities of the air as suffices for the following crop. It is rather remarkable that, while oak thrives best on a clayey subsoil, it does not seem to affect rich alluvial land; and this I imagine to be entirely owing to its closeness of texture preventing all access of air to the place of the roots.

Aquatic plants which live entirely submerged, although defended from external air, receive as much as they need from the surrounding water, which always contains a notable measure, besides nutritive bodies in solution, which form the pabulum of plants, whether aquatic or terrestrial.

Another tribe of plants are attached to earth, but so slightly, that their system of roots is nothing compared with the bulky heads sustained; and as these plants are mostly found on rocks, or on the driest tracts of country, it is evident that the greatest portion of their nutriment is drawn from the atmosphere. Another tribe of curious and beautiful flowering plants is called Epiphytes; [or parasitical plants, as the Misletoe;] because they attach themselves to the stems and branches of trees, not to sustain themselves by extracting their juices, but to be supported in the deep shade and most air of thick tropical woods. Some of these are called *air plants*, and grow as well in a basket without earth, suspended in a warm, damp, shady place, as if they were in their native habitat.

Thus we see that air is particularly necessary to plants, and as much so to the roots as to the head and foliage; and it is this fact, as already observed, that justifies all the means of cultivation which we have recourse to with a view of rendering the staple more loose, and consequently more permeable to all atmospheric influences.

There is one circumstance, however, which deserves to be noticed along with these general remarks: it is this—that all seeds require to be closely embedded in the soil, that is, they should be in close contact with the mould all round; and, that this should be completely secured, some seeds require to be laid in *heavy*, as wheat for instance. Now we have only to consider that as the soil has been previously prepared,

and more or less reduced to the finest practicable state, a considerable volume of air is incorporated therewith, and that this air, according to its temperature and the moisture of the soil, facilitates the germination of the seed, and continues to assist the development of the plant. To obtain this close embedding of the seed, it is the practice to tread it in—a practice which is found of service to wheat, peas, beans, and almost all small seeds; but which would be of no avail without the previous disruption and aeration of the soil.

All these matters premised, it only remains to conclude with a general declaration that, in all our practices and means employed for the amelioration of the land, every thing that can be added or taken away, every operation performed, and every implement used in the culture, should all have for their ultimate object either directly or indirectly, the breaking up of the compact and impervious surface, so that copious and constant supplies of air may be freely admitted to the roots of the plants.

ON THE VALUE AND PROGRESS OF AGRICULTURAL SCIENCE.

THE dignity of Agriculture was rightly vindicated by the younger WADSWORTH, when declaring that "there is no pursuit in which so 'many of the laws of nature must be consulted and 'understood, as in the cultivation of the earth." The New-York State Agricultural Society, honored itself when honoring him with its Presidency; and we know not how we can better promote its noble objects more effectually than by disseminating the sentiments which have influenced that gentleman in devoting his energies and the influence of his example to the agronomic interests of his countrymen. The importance of *associated effort*, as well as the value of intellectual investigation and scientific research, were properly enforced in his Addresses on the subject of Agricultural Improvement; and we freely occupy the requisite space with extracts from one of those productions, with the fervent wish that the interest which has been manifested by Mr. Wadsworth of Genesee, Mr. Lenox of this city, and Mr. Colt of Paterson, and other men of fortune, who might be named, may be more extensively emulated—men whose wealth and influence enable them to exemplify and sustain the claims of Agriculture upon the attention of the rich even more than the poor, upon the millionaire and the scholar even more than upon the Farmer of more limited means.

The paramount want of the landed interest in this country, is *capital*. Thousands have too much land, who are restricted in every means necessary for its improvement. Of what value will be all the science and all the improved labor-saving implements and improved domestic animals, if the means cannot be found for their introduction and practical application.

What Farmer of moderate circumstances, for example, can send to Peru for the Apachian Sheep, which every consideration founded on a knowledge of its qualities leads us to believe ought to be imported and tested in our country? Is it not then obviously, in direct proportion to their fortune, that opulent men, inspired with a noble ambition, can entitle themselves to the benedictions of their country. If there be any truth in signs, even the political horoscope is full of them to show that the day is at hand when men are to find present popularity, as well as true glory, in promoting the *arts of peace*—in equalizing the comforts and augmenting the happiness of their fellow men. For us and our House, we shall ever stand ready to exalt the names of men who with the means, unite the taste and the noble feeling to put their hands to and say, *God speed the plow*. But our own feelings would carry us away—let us back to our theme.

For all classes of society there is certainly instruction and consolation in the following passages on the application of Science to Agriculture: "The application of science," said Mr. WADSWORTH, "the most profound which has 'yet been attained by the far reaching efforts of 'the human mind, to all the products of our in'dustry—to the soil, the crop, the animal—has 'been reserved for the age in which we live. It 'is not claiming too much to say, that more pro'gress has been made in this direction within the 'last twenty years than in any previous century. 'Our own countrymen, it is gratifying to per'ceive, are securing their share of this abundant 'harvest. Our chemists and geologists will not, 'we may be sure, rest contented as industrious 'gleaners after the Davys, Liebigs and Johns'tons of other countries, but will push forward 'into the ample domains, which even those 'acute discoverers have not penetrated.

"From the origin of our race *almost* to the present time, the path of the husbandman has been clouded in darkness and doubt. From the sowing of the seed to the gathering of the harvest, mystery attended every step. The first link in the great chain of cause and effect was hidden in uncertainty. The precepts of tradition, the result of a multitude of experiments, were founded mostly in wisdom; but they were as inexplicable as they were sound. Not so now. The scientific analysis of soils, of manures, and of vegetable products, explains not only the workings of nature and the practices of art, but opens an inexhaustible field of new combinations and novel results. * * * *

"If other nations, in the vigor of maturity, with more leisure and more means than we possess, have outstripped us in the race of philosophical discovery, let it be *our* boast, that we have spread these discoveries *wider*, and made them at once available by making them part of the current knowledge of the nation. Let it be our first aim to diffuse knowledge—where the constitution has rightly given power—to the whole people.

"It is not the sole object of our Society to reward those who bring to our Fairs the finest animals, or to remunerate those who, with skill and industry, raise the best crops. These are but the means, and part of the means, by which it is hoped to achieve higher and wider ends. We wish, *by association*, by comparison of ideas, and by a generous emulation, to diffuse among ourselves, and the mass of the agricultural community, the results of experience, the lights of science, and the productions of art.

"Of the incalculable power, for good and evil, of *association and combined effort*, the present age abounds in illustrations. That this great element of man's power has often been wielded to trample upon the equal rights, the peace and happiness of society, cannot be denied. Of the many instances in which, with widely different and higher aims, it has effected the noblest achievements, I shall only refer to one. With what language can we describe, with what powers of calculation estimate, the wide-spread good accomplished, the deep misery warded off, by temperance associations?—What individual, wielding even a despot's sceptre—what government, monarchical or democratic—what law—what armed force, could have achieved the great results brought about in our day, within our own observation, by these efforts? With this signal illustration before us, we cannot lack confidence in any efforts wisely directed to a good end. With motives which cannot be impeached, with objects which can no where be condemned, asking no special privileges, requiring no exclusive immunities, seeking only to elevate and render more effective that labor from which man is destined never to be exempt, we may surely here, if any where, call to our aid the great power of association and combination.—With this element of strength we wish to awaken the public mind to a sense of the importance of our avocation, and to dispel whatever may be left of that ancient prejudice, that the tiller of the soil is the drudge of the human race.

"*It is strange that it should have been overlooked*, even in the darkest days of despotism and ignorance and superstition, that he who sows the seed and reaps the harvest, works not only with the plow and with the hoe and with the scythe, but that *he wields*, far beyond the laborer in any other branch of industry or art, *the elements of powers and nature*. There is certainly *no pursuit in which so many of the laws of nature must be consulted and understood, as in the cultivation of the earth*. Every change of the season, every change even of the winds, every fall of rain, must affect some of the manifold operations of the farmer. In the improvement of our various domestic animals, some of the most abstruse principles of physiology must be consulted.

"*Is it to be supposed that men thus called upon* to study, or to observe the laws of nature, and labor in conjunction with its powers, *require less of the light of the highest science, than the merchant or manufacturer?* Or is it to be believed, that men who go weekly, almost daily, to different occupations, changing with the almost unceasing changes of the seasons, and whose business is to bring to maturity such a multiplicity of products, exercise less the highest intellectual faculties of man, than the laborer who, day after day, and year after, follows the unchanging manipulations of art?

"Happily for the interests of the farmer, the history of our country abounds in evidence that this great misconception of the nature and tendency of agricultural labor no longer exists."

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"It is not alone in the brilliant results of scientific investigation, nor in the fertility of the soil, nor in the general salubrity of the climate, that the American farmer finds the ground of his brightest anticipations for the future. There are other and higher elements in the composition of his fate. The government which watches over him is the government of his choice—a government in which the permanent interests of the great mass of the people are secured by placing the power in their own hands. Under such institutions the pendulum of public justice may sometimes vibrate between dangerous extremes, but it must eventually repose where justice and the interests of the many, require that it should rest. Such are the hopes of the farmers of our country. It is not to be denied that their interests have been sometimes neglected, and their rights sacrificed to the sinister aspirations of classes more favorably situated for political combinations; but if there is any foundation for our faith, that a free government is the fountain of equal justice, these aberrations must be corrected in the slow but certain progress of truth and right.

"I trust that American agriculture will illustrate and confirm the striking remark of the author of the 'Esprit des Lois,' a writer, the most philosophical and liberal of his time, 'that it is not those countries which possess the greatest fertility, which are the best cultivated, but those which have secured the most liberty.' I find this suggestion, so flattering to our hopes, eloquently commented upon by a late distinguished agriculturist of our country, in an address which he delivered before the Agricultural Society of Pennsylvania; and I gladly avail myself of this opportunity to pay to his memory a tribute of respect, which is due, in a more eminent degree, to but one other name in the history of American farmers and patriots. With many other improvements in agriculture, Judge Peters was emphatically the author of the plaster and clover culture. The time which your patience will allow me to occupy on this occasion, will not permit me to recount the many experiments, at once ingenious and philosophical, with which he demonstrated the wonderful efficacy of plaster, nor the efforts, equally persevering and philanthropic, with which he labored to introduce into general practice, this great fertilizer. He succeeded. None but those well acquainted with the course of husbandry in our wheat-growing districts, can estimate how much of the eighty-four millions annually produced in our country, is owing to the introduction of plaster and clover. The benefits of this improvement are to be counted by annual millions; and I call it up to your attention, not only to pay the debt of gratitude due to its distinguished author, but as an incentive to those who, with the better instruments of a more advanced science, have the

same field of practical improvement before them. It is happily the nature of human knowledge that *the more it achieves*, the *larger is the field of achievement*. As the outer circle of invention and discovery is pushed farther and farther from the centre, the more numerous and of a higher order are the objects which present themselves to the investigation of those whose lofty ambition it is to add something to the mass of human attainment.

"The Society has endeavored to contribute something to this onward movement by offering prizes for essays upon the application of science to agriculture. I trust that the result will vindicate the wisdom of this policy, and lead to its continuance.

"In this country, with just laws, justly administered, where the popular voice can promptly correct every oppressive enactment; where, with common schools and an untrammeled press, knowledge circulates as freely almost, as the air we breathe, it would be surprising, and not less discreditable than surprising, if agricultural improvement did not keep pace with the progress of the country in every other respect. For one, I have no fears on this point. I believe that our progress, with or without Agricultural Societies —though greatly accelerated by them—is to be decided and rapid. I am not, however, unaware, nor should we ever lose sight of the fact, that agriculture, like learning, has had its dark ages. It has risen to great perfection. receded, and rested for centuries without any apparent improvement. The history of the world abounds with evidence that the cultivation of the earth was at an early day carried to a high point.

"In China, it is well known that for uncounted centuries a degree of skill has been exhibited in the preparation and application of chemical and vegetable manures, that is not, even now, equaled in any part of Christendom. A recent popular writer counts it as not the least valuable result which may flow from the Opium War, as it is properly designated, and which it is to be hoped for the honor of humanity, is now terminated, that by opening a more general communication with that extraordinary people, we may learn something of their agricultural skill. The Chinese are not the only people beyond the pale of Christianity and modern civilization, who have attained a remarkable degree of skill in certain branches of husbandry. The aborigines of South America and Mexico practised irrigation upon a scale, and with a perfection of detail, not surpassed in any modern improvements.—The Spaniards, superior to them in the art of war, overcame them in battle, but have not equaled them in skilful and industrious tillage.

"Throughout all those immense regions of British India, where the indomitable perseverance and courage of the Anglo-Saxons have subjected millions to the control of thousands, the conqueror has learned more than he has been able to impart of practical wisdom directed to the cultivation of the soil. A high cultivation, accompanied by the use of irrigation and mineral and vegetable applications, has there carried the productive powers of the earth to a point never yet attained in those parts of the globe claiming to be more enlightened.

"In ancient Egypt the results were, if possible, more extraordinary. There, not only agricultural productions, but the imperishable monuments of art, surpass even the comprehension of modern science.

"Coming down to the early days of Christian era, we find the Roman writers abounding in sound precepts and suggestions, which even now might be adopted with advantage. Nearly the whole of Varro might be read with profit by our modern farmers. True, it is often tinged with a superstition now happily discarded, and relates to a state of society and government, widely differing from our free institutions.

"But in all that relates to tillage, to the preparation and application of manures, his suggestions accord with the views of our best modern practical farmers. In the classification of mineral and vegetable manures, such as lime, marl, and many varieties of compost, he gives to each the relative value which has been affixed by the most profound chemical analysis.

"If it is somewhat discouraging to look back and find ourselves but little in advance of the remotest times, in many departments of our profession, we may at least, congratulate ourselves that we live in an age when agriculture is in the ascendant. It is no longer given up to serfs and slaves, as the fitting occupation of the most ignorant portions of the community. It now takes its rank among the honorable and elevating pursuits of industry. To follow the plow and tend the flock, is no longer, here at least, the mark of ignorance and servitude, as under a false and despotic system it was, and in some parts of the globe still is. In this we stand upon ground which the ancients never attained. It is the great achievement of modern times. The rights of man and the dignity of labor are vindicated—the one follows from the other. Agricultural improvement, then, rests upon a foundation on which it never stood before. It is sustained by free institutions; it is the result of laws, wise, because liberal. The enfranchisement of the many, the elevation of the masses, must go hand in hand with the intelligent, industrious, and prosperous cultivation of the earth.

"If agriculture owes much to the benign influence of free institutions, liberty owes not less to agriculture. Where do we look for the calm discretion, the disinterested patriotism, which must sustain a representative government, but to the great community of cultivators of the earth? Even those most skeptical as to the fitness of man for self-government, admit that if the experiment ever succeeds, it will be in a nation of farmers. The experiment, thank Heaven, has succeeded; it has succeeded in a nation of farmers; and while we must not be guilty of the illiberality of doubting that the great manufacturing nations of other continents may be fitted to administer the high duties of freemen, it becomes us to cherish a profession which, more than any other, prepares man to receive the highest blessing of his race in this world—a free government. We must cherish it by industry, by virtue, by intellectual cultivation; by connecting it with science and the arts, and with every thing which can elevate and adorn it. If we do our duty by ourselves and our children, agriculture will never again, it is to be hoped, know the dark ages in which for so many centuries it slept with liberty and learning. Let us do our duty in the responsible station and happy era in which Providence has cast our destiny, and I trust the day is far, far distant, when we shall cease to be a nation of farmers and a nation of freemen."

A SCENE—*In a Tent of Agricultural Editors.*

A GREAT Exhibition of the products of American Agricultural, Manufacturing and Mechanical industry, being held, as is supposed, at Washington, D. C., under the auspices of the NATIONAL INSTITUTE, on which Congress, after long protracted and shameful delay, had bestowed the Smithsonian Fund—the Editors of the Agricultural papers have assembled in the tent appropriated for their use, exchanging friendly greetings, when he of the "FARMERS' LIBRARY," and founder of the old American Farmer, enters, and, being to many of them unknown, thus makes his respectful salutations:

Friends and Brothers: When a man enters a room unbidden, and, it may be unknown to most of the company, claiming fellowship, and a seat among them, common courtesy should prompt him to say, with a certain character in the farce, "*Hope I don't intrude?*" He who now addresses you, however, has the advantage of knowing at least as many of the present company as may suffice to introduce him to the rest.

When he retired from the corps Editorial, some years since, he could have identified nearly all who belonged to it. The kindest sort of personal intercourse, or a no less kind interchange of good will by friendly correspondence, had passed—the remembrance of which, he flatters himself, may make the renewal of that intercourse now, mutually and without exception, agreeable. But, on looking around the room, he cannot but ask himself how it is that, while he left the plow only for a short spell, and even during that time running a furrow, occasionally, for some old fellow-laborer, that, coming back now to regular work, he finds so many *new* faces in the same field? most of them, he thinks, looking smarter and more alert—doing their work in a *leetle* better style than when he first broke new ground in the old *American Farmer*. Dare he flatter himself that these weekly streams and monthly floods, that are pouring their salubrious waters far and wide to irrigate and fructify the land, are but so many issues from the old fountain, opened by him on the 2d of April, 1819? Are your journals but the produce of that old parent stem, which have sprung up, as the seeds of plants of the class syngenesia, furnished with a plume, are, by that admirable mechanism, disseminated far from their parent stem? or, are they, rather, vigorous shoots, of spontaneous growth—such as genial skies and showers always bring up in the wake of cultivation, to succeed the coarser herbage of Nature? At all events, their appearance is a proof that the wants of Agriculture demanded them. Friends! I rejoice to find myself once more in such honest company. To each and all I would fain extend the hand of fellowship; and why not a hearty greeting for the whole corps Editorial—

"To you, Tom Brown! and to you, John Brown!"

as the social song runs? Have not all an equal interest in the prosperity and good name of our common country? Are we not all seeking to awaken and to gratify a love of knowledge, and with it *charity and union?* Here are advocates from all quarters to guard every Agricultural interest and staple, as it is right there should be.

> "Nor yet will every soil, with equal stores
> Repay the tiller's labor; or attend
> His will, obsequious, whether to produce
> The olive or the laurel."

There stands friend BRECK, from "down East," the noble old Bay State, to tell us, in the New-England Farmer, all about the disease in potatoes; and there, again, are brothers North and Phillips, of the "South-Western Farmer," leaning on their cotton plant, and talking learnedly of *gossipium*; while Botts, full of zeal and intelligence, stands midway, ready with his tobacco-stalk to demolish all the *humbugs* that may come flying along in quick succession, like so many *ignes fatui*, to delude the honest "Southern planter." Ah! and there, too, is the vigorous driver of my old team—the *Editor of the American Farmer!* Well, I am too glad to see him still upon his legs, and, though he is dressed off in a *new suit*, *he* won't give the "*cold shoulder*" to an old fellow-laborer. He can vouch that in the many years that we wrought in the vineyard which we planted, and that he has since brought into more perfect bearing, not a line, nor a word, ever escaped us, in expression of party feeling or the provocation of ill-blood. Let us all, then, I say—old soldiers and young recruits—unite to keep off the rust with which Time, like the worm that gnaws at the root, night and day, would weaken the chain of friendship. The world is wide enough for all, even though we were not stretching our arms to grab at once the Cape of Labrador and the Halls of the Montezumas. And, moreover, let us remember what we are taught on the highest authority—"Brethren! the time is short." Let me, then, close this address to brther Editors of whatever interest or party, by asking *one favor*. If you would welcome him to put his feeble sickle in the common field, will you please copy this, or otherwise proclaim that

SKINNER—we won't say in his *old* age—(let that word become "obsolete")—has rejoined the Editorial phalanx, and set down now, with no other employment, to make his bread by assisting to teach others, in "THE FARMERS' LIBRARY." how to make theirs.

The Farmers' Library and Monthly Journal of American Agriculture will have no sort of connection, near or remote—direct or contingent, with any political object or paper. In Agriculture there is no party politics. The publication will consist of at least 100 pages a month, to be made up of standard works on practical Agriculture, and all sorts of treatises which it may be becoming and useful for a cultivated Farmer and his family to read, either for solid instruction or elegant amusement in any way connected with his condition and pursuits in life.

The engravings, lithographs, paper, type, &c. all to be of first quality—making two volumes per annum, of at least 1,200 pages, all for $5 a year. Address J. S. SKINNER,

Editor of the Farmers' Library,
Tribune Buildings, New-York.

THE POETRY OF RURAL LIFE.

IT is to be hoped that few or none of the readers of the "Farmers' Library" entertain the notion that an Agricultural publication should be utterly barred against the Muses—exclusively confined to the mere dry statistics of Farming industry. Horses, corn and oxen—pigs, poultry and potatoes—are all valuable in their way; and we will go as far as any one to encourage improvement, so as to realize the greatest proportionate value from the investment of labor and capital. But we are far from thinking that poetical associations are incompatible with rural pursuits; and, indeed, we fancy that much service may be rendered by irradiating country life with the charms of Song. The spirit that led to the introduction of Music in our Common Schools animates us in the belief that similar benefits may result from the better culture of the imagination, (as well as the soil) among the Farming community. Indeed, we fancy that we cannot better promote a preference for rural pursuits, and thus aid in benefitting the Agricultural interest, than by appealing to the taste, as well as the intellect, through occasional quotations from the writings of poets who "looked through Nature up to Nature's God."

Who that is familiar with the poetry of BRYANT can ever enjoy the solemn grandeur of our forests without realizing some of the ennobling sentiments which breathe through such poems as that commencing with these lines;

"The Groves were God's first temples. Ere Man learned
To hew the shaft, and lay the architrave,
And spread the roof above them—ere he framed
The lofty vault to gather and roll back
The sound of anthems; in the darkling wood,
Amid the cool and silence, he knelt down,
And offered to the Mightiest solemn thanks
And supplication."

Our purpose is not to sermonize at the present time, but rather to invoke the attention of our city friends towards the attractions presented for recreation in the country during this "merrie month of June." And how can we enforce our object more agreeably than by quoting, from the Dublin University Magazine, some stanzas written by the late Mrs. Gray?

"Go forth into the country,
From a world of care and guile;
Go forth to the untainted air,
And the sunshine's open smile.
It shall clear thy clouded brow—
It shall loose the wordly coil
That binds thy heart too closely up,
Thou man of care and toil!

"Go forth into the country,
Where gladsome sights and sounds
Make the heart's pulses thrill and leap
With fresher, quicker bounds.
They shall wake fresh life within
The mind's enchanted bower;
Go, student of the midnight lamp,
And try their magic power!

"Go forth into the country,
With its songs of happy birds,
Its fertile vales, its grassy hills,
Alive with flocks and herds.
Against the powers of sadness
Is its magic all arrayed—
Go forth, and dream no idle dreams,
Oh, visionary maid!

"Go forth into the country,
Where the nut's rich clusters grow,
Where the strawberry nestles 'mid the furze,
And the hollyberries glow.
Each season hath its treasures,
Like thee, all free and wild—
Who would keep thee from the country,
Thou happy, artless child?

"Go forth into the country!
It hath many a solemn grove,
And many an altar on its hills,
Sacred to peace and love.
And whilst with grateful fervor
Thine eyes its glories scan,
Worship the God who made it all,
Oh! holy Christian man!"

CLAIMS OF AGRICULTURE UPON THE BUSINESS COMMUNITY.

To Merchants, Manufacturers and others on the Calamities of Trade:

THE vicissitudes attendant on trade have essentially aided in enforcing the claims and advantages of Agriculture upon the attention of the business community generally—upon the Manufacturer, Mechanic, Merchant and "professional man," as well as upon the "natural born" Farmer himself.

Singular as it may seem to the unreflecting, the statistics of our cities and towns will prove that the operations of the trading world are subjected to more than lottery-like uncertainty, for whereas, in lotteries there may be not "two blanks to a prize," there is a still larger proportion of disaster resulting to persons whose fortunes are embarked in trade.

The history of the trading community, in almost any given district, conclusively proves the startling fact that full three-quarters (aye, even a larger portion) of merchants and manufacturers are driven from their stores with shattered fortunes and mind depressed; aggravated by the reflection that in prosperity they had neglected to make suitable provision of agricultural property and knowledge, which would have proved a comfortable homestead, at least, for their declining years—thus guarding their families from being thrown upon the cold charity of the world, or from having recourse for a wretched and precarious livelihood to some revolting employment.

Though Farming holds out no decoying hopes of large fortunes to be *speedily* realised, it furnishes, if pursued with economy and industry, in the first place a certain shelter, with unfailing means of comfort and independence to those who apply their intellect as well as diligence in cultivating the soil; and in what branch of industry can intellect be more advantageously employed for promoting individual happiness and national welfare?

Far be it from our thoughts, in any wise to undervalue the importance of mercantile and manufacturing pursuits; too highly do we esteem them, as promoters of civilization and indispensable purchasers and consumers of the surplus fruits of Agricultural industry itself. The Merchant and the Manufacturer, when just and liberal, as well as intelligent and enterprising, may be classed among the noblest of our race; for doubly honored should they be, who, daily beset with the multitudinous allurements of the world, and exposed to its most unexpected and trying vicissitudes, yet, in spite of all these, pursue the course of honor triumphantly through life. But surely a reasonable degree of attention to Agriculture and Horticulture—attention in storing the mind with valuable information on the theory and practice of arts which lie at the bottom of all earthly pursuits. Surely, surely such attention cannot injuriously interfere with assiduous devotion to commercial and other industrial pursuits, but, on the contrary, afford, by diversity, that occasional recreation which gives power to prosecute them more vigorously.

The history of the whole trading community speaks volumes of admonition on the importance of making for your families, in days of prosperous adventure, some *certain, substantial terra firma* provision, however small, for your families. Even amid the turmoil with which we are surrounded in these large cities, the following startling assertions, made recently in public discourse by a distinguished citizen of New-England, will scarcely fail to force their way to the anxious attention of every prudent business man. We respectfully wish it to be borne in mind, that it will be one of the leading objects of the FARMERS' LIBRARY, to aid in attracting the attention of such men toward the pleasures and advantages of rural pursuits, and to inculcate on all such the propriety of securing (while fortune enables them honestly to secure,) a comfortable little farm, however small, for "the family," where the trader, unfortunate in business, as a large portion of them sooner or later become, may spend the evening of his life, with the comforting reflection that, while he could justly do it, he had the prudence and intelligence to provide a homestead, beyond the reach of fraud or accident at home, or the disasters of the sea. For such men, as well as for those whose only business now is Agriculture, we design the "FARMERS' LIBRARY," and flatter ourselves that we may look to the trading community, to the prosperous Manufacturer and the fortunate Mechanic, for such a share of patronage as will indicate that the comforts and amusements of Agriculture and Horticulture are duly appreciated in the intervals of business; and that they agree with us in the opinion, that nothing can be more expedient than to provide a *snug farm* as a retreat for wives and children, when driven

from the city by enfeebled health, declining business, or, otherwise, total bankruptcy—until circumstances lead him to occupy it himself, it may afford an honorable field of industry and intellectual employment for a son, who might otherwise be wasting his life and energies in town; or may be rented at a saving interest to a good tenant. To either of these, the FARMERS' LIBRARY, *and Monthly Journal of Agriculture*, might be turned over, to excite in the one a fondness for agricultural science and literature, and so practically instruct the tenant as to secure certain improvement of his property and easy payment of his rent.

Let those who have not carefully reflected on these matters, now maturely consider the statements, made by Gen. DEARBORN, in a Lecture delivered before the Massachusetts Agricultural Society. While contrasting Agricultural and Mercantile pursuits he remarked that men should instil into their sons a *love of Agriculture*. He declared that he would prefer a cottage in the country, with five acres of ground, to the most splendid palace that could be erected in the city, if he must depend upon the success of merchandize to support it. He then went on to say, "that having been some fifteen years in the Custom-house, in Boston, he was surprised to find, at the close of his term, an entire new set of men doing business there. This induced him to look into the subject, and he ascertained, after much time and research, that ninety-seven out of every hundred who obtained their livelihood by buying and selling, *failed* or died insolvent. He then submitted his calculation to an old merchant of great experience, who confirmed it in every particular.

"The statement made by General Dearborn, appeared to me so startling, so appalling," says an intelligent observer, "that I was induced to examine it with much care, and I regret to say I found it true. I then called upon a friend of mine, a great antiquarian, a gentleman always referred to in all matters relating to the city of Boston, and he told me that in the year 1800, he took a memorandum of every person on Long Wharf, and that in 1840 (which is as long as a merchant continues business) only five in one hundred remained. They had all in that time either *failed* or *died* destitute of property. I then went to a very intelligent director of the Union Bank (a very strong bank); he told me that the bank commenced business in 1798, that there was then but one other bank in Boston, the Massachusetts Bank, and that the bank was so overrun with business, that the clerks and officers were obliged to work until twelve o'clock at night, and all Sundays; that they had occasion to look back a year or two ago, and they found that of the one thousand accounts which were open with them in starting, only six remained; they had in the forty years either all *failed* or *died destitute of property*. Houses whose paper passed without a question had all gone down in that time. Bankruptcy, said he, is like death, and almost as certain; they fall single and alone, and are thus forgotten, but there is no escape from it, and he is a fortunate man who *fails young*. Another friend told me that he had occasion to look through the Probate Office a few years since, and he was surprised to find that over ninety per cent. of all the estates settled there, were insolvent. And within a few days, I have gone back to the incorporation of our banks in Boston. I have a list of the directors since they started. This is, however, a very unfair way of testing the rule, for bank directors are the most substantial men in the community. In the old bank, over *one-third* had failed in forty years, and in the new bank a much larger proportion. I am sorry to present to you so gloomy a picture, and I trust you will instil into your sons, as Gen. Dearborn recommends, a love of agriculture, for, in mercantile pursuits, they will fail to a dead certainty."

Are the business men of New-York, Philadelphia, Baltimore, Washington, Richmond, Charleston, Savannah, New-Orleans, Louisville Cincinnati, St. Louis, more prudent, sagacious, or successful than those of Boston? And whether they are or not, the foregoing extraordinary facts indicate the propriety with which we invoke the business community, to bestow more attention upon *Agriculture*, for recreation in the season of a prosperity, and for sure refuge in adversity.

The Farmers' Library and Monthly Journal of Agriculture—(consisting each number of not less than 100 pages)—of which the first number is herewith presented to the public, was established partly with a view to supplying Merchants and Manufacturers, as well as Farmers, with every species of information connected with the culture and management of Farms and Gardens—and under a proper sense of the liberality with which well-meant enterprises of this sort are sustained by all enlightened communities, we confidently anticipate a reasonable share of that patronage, which will enable us to extend our usefulness in the broad field upon which we have entered.

GIGANTIC GERMAN GREEN.—There was growing, in 1842, in the garden of Mr. John Murray, Easter Newport, Fife, a plant of German greens of extraordinary dimensions. It was planted about four years ago, in the ordinary way, in a corner of a plot, and, at the time above specified, had attained to the following size:—it covered an oblong piece of ground twenty-seven feet in circumference. It sent forth seven main branches, which supported other sixty-one branches, five of which bore seed in 1842, and in September of that year the entire plant was in a healthy growing condition.

						Feet.	Inches.	
The 1st branch bore	11	stems,	each	9	9	in length.
2d	"	"	8	"	"	7	3	"
3d	"	"	13	"	"	7	6	"
4th	"	"	15	"	"	10	0	"
5th	"	"	3	"	"	7	2	"
6th	"	"	10	"	"	6	0	"
7th	"	"	1	"		3	0	"

GUANO.

THERE seems to be a sort of *crisis*, if we may so call it, in the fate of this substance—whether it shall or shall not continue to be an article of commerce, and of practical use in American Husbandry. We shall submit, impartially, the testimony for and against it, leaving the reader to say on which side it preponderates. To us it seems, at present, to be decidedly *pro-guano.*—But we feel it to be our duty to premise, that neither from indolence, which leads us to snap at whatever saves us trouble, nor from want of due caution, should any farmer allow himself to be drawn into a neglect of the *materials to be found on his own premises* for manufacturing manure—and yet we must declare that such neglect is committed to a degree that is full of reproach and discredit, more especially to Southern Agriculturists. On this point, however, as on many other points of Husbandry, great reformation has taken place, and is going on, over that region of country—for even the dullest comprehension begins to perceive, that renewed applications of manure to cultivated fields is as indispensable (and on precisely the same principle) as daily food is necessary to *a cow that is daily milked!* and that in both cases the product will correspond with the quantity, and yet more with the *quality* of the food.

On this subject of the quality of food, as connected with the strength and value of the manure—believing that it cannot be too often or too forcibly impressed on the mind of the Farmer—we stop, in going along, to copy a striking passage, applicable to the general subject and connected with the one in hand:—

"The quality of animal dung materially depends upon the nature of the food habitually used. The richer and more nutritious it is, the greater will be the fertilizing properties of the emanations. Hence the dung of the race-horse is more valuable than that of the drudge released from the cart and kept upon low fare. For the very same reason the excrementitious deposits of birds, feeding upon fish or flesh, afford a stronger manure than parrots, for example, because the latter live only on grain and berries. Maize, during a great part of the year, is almost exclusively their food, and the ravages committed by them on the fields planted with it are extensive. Their dung, consequently, approximates more to that of the race-horse. If we could find out the excrementitious leavings of any other bird or quadruped, containing more ammoniacal compounds than Guano, and of which the supply is equal, then only should we possess an equivalent. This appears to be impracticable although it is a fact, analytically ascertained, that the dung of the boa-constrictor contains more ammonia than that of any other animal hitherto experimented upon."

The history of the introduction of Guano intc the United States is worthy of being noted, to show the slowness with which new things are admitted into general use among Farmers; at the same time that its present popularity evinces the activity of agricultural inquiry, and the necessary and powerful force of the press in pushing, against every obstacle, a knowledge of the value of things, of which the existence would not otherwise be known. The extent and the manner in which that force was exercised during the last year, to spread a knowledge of the then recent importations and the value of Guano, is to no one better known than to us. The gentleman who contributed more than all others united to its distribution and trial, is, we may as well say, Mr. GEORGE LAW, of Baltimore, of whom it is but proper to add, that his exertions were purely and altogether disinterested.

Mr. Law has done for Guano what Judge PETERS did for *Plaster of Paris.* The same hesitation was evinced about the use of bone manure. When Mr. Hornby erected his establishment for grinding bones in this city about nine years since, he was under the necessity of making a gratuitous distribution of that material.—Farmers consented, with suspicious hesitation, to apply them—but the next year he sold 8,000 bushels, and thence the demand rapidly increased, recommended by its portability and its power, and bones that sold at first at five cents a bushel, went up to thirty! Yet there are thousands of Farmers in the United States who never even yet have seen or read of *bone dust* as a manure. And these are the very anti-inquiry, anti-reading gentlemen who would persuade us that there is *nothing to be learned from books*, as there was *"no good could come out of Nazareth."* To return.—This extraordinary substance, which has, within the last eighteen months, attracted so much notice in this country—eliciting publications on its uses and qualities, until some of the most intelligent inquirres after, and diffusers of Agricultural knowledge are heard, at the very word *Guano*, to exclaim—"Enough—the very smell of it is enough!

'Give me an ounce of civet, good apothecary, to sweeten my imagination.'"

This substance, we repeat, which is general-

ly supposed to have been only last year imported into the United States, was received—two barrels of it—and distributed from the office of the old American Farmer as far back as the *Spring of* 1825—just twenty years ago! It was on that occasion that the Editor of this, the "Farmers' Library," by whom these two barrels were distributed, published an account of its use and value in Peru, together with a full analysis of it by two eminent French chemists, Fourcroy and Vaugelin, who were supplied with specimens for that purpose by Bonplase and Humboldt; Humboldt, by the bye, suggested the question, whether Guano might not be considered as the product of the revolutions of the earth, and to be classed with the formations of coal and fossil earth. Hence Guido Ricci proposed to give it a place in our mineralogical systems, under the name of Ammonique Uratée, (Urate of Ammonia,) or at at least to consider it as a natural product; and we know that, however well it may be considered settled that these immense deposits consist of the dung of sea-birds, there are captains of ships who have visited them, who yet feel strongly persuaded that Guano is a natural substance, thrown up by some extraordinary convulsion or quake of the earth. Be that as it may, we refer, for the present, to the sixth volume of the American Farmer for the substance of all that has been since published as to the *mere use of it in Peru* —though we shall give a highly interesting "MEMOIR ON GUANO—ITS HISTORY AND USES IN PERU: BY WILLIAM WALTON," as soon as we can find room for it; and venture to say, that though he may now think the threat of it a rank offence, it will be read by none with more *gusto* than by a certain esteemed friend and *colla borateur*, just referred to as being already surfeited. "*Nous verrons.*"

That memoir on Guano, too, is one of those *foreign* essays, with which we shall test and, as we believe, gratify the taste of our readers for the literature, as well as the details of Agriculture. But to return to the use of Guano in the United States. As far back as, and we believe coëval with, the importation already spoken of, Commodore Stewart sent a quantity of it to Col. Monroe, then President of the United States, of which we have no report. At that time, and to the end of his patriotic life, we had the honor to enjoy the confidence and friendship of Col. Monroe, and we are by no means certain that the two barrels which came into our hands were not handed over by him for distribution. At all events, it was given to the late Robert Smith, President of the Maryland State Agricultural Society, and to Governor Lloyd, then the most extensive and among the most enterprising and intelligent Farmers in the Union. He reported that the effects of it as applied to Indian corn was remarkably favorable; but no measures were taken to procure any farther supply, and almost with the smell was exhaled the remembrance of Guano, until some four or five years since it was tried in Great Britain, on the small scale of a few bags. The demand has gone on increasing, with more diffused observations of its properties, until, as the reader may perceive, were it only on reading the following from the New-York Express of this morning, the Agricultural community is all alive about it.—By the bye, without confining the observation to *Guano*, how much quicker the English Farmer is to "snuff oppression in every tainted breeze," than his *brother Jonathan!* How long would English Farmers submit to a tax such as is levied here, on bird's dung, as a non-enumerated article in the Tariff?—a tax which, as will be seen by Mr. Bartlett's letter, threatens to put an entire stop to the importation of the article. The import duty in England is nothing, or next to nothing; and if our next Congress should not be engrossed by that spirit which has been aptly called the madness of the many for the benefit of the few, the duty will be repealed in this country.

"THE GUANO TRADE excites great attention in Liverpool. At a meeting of merchants on the 19th of May, a letter dated the day previously and written by Lord Stanley, stated 'that the charge in question for taking Guano from Malaga Islands was originally enforced by the authorities at the Cape, on the ground that the Guano discovered in the bay was the property of the Crown, and to remove all doubts on the subject he said an ordinance had been enacted by the Legislature of the Colony, under which the license fee had been demanded; but in deciding upon the confirmation of that ordinance, Her Majesty's Government would not fail to bestow their best attention upon the objections made to the imposition of the charge.' It was mentioned incidentally at this meeting that upwards of £50,000 was involved in Liverpool alone, upon the solution of this question, and that there are several houses interested to the amount of £2,000 and £5,000. Eventually a deputation was appointed to proceed to London to wait upon Lord Stanley, with the view of impressing his Lordship with the absolute necessity of abolishing the license fees, if the trade is to go on.

"A representation was made to the Colonial Secretary to the effect that the Guano at Ichaboe being exhausted, vessels in the trade now proceed to Saldanha Bay, but they were not allowed to take away the manure without a license from the authorities at the Cape of Good Hope, for which they were required to pay at the rate of 20s. per registered ton of the vessel. This imposition, it was alleged, amounted to upwards of 20 per cent. upon the selling price of the article in this country, and, in consequence of its being of an inferior quality, the importers were not able to realize the costs; therefore, as a means of relief, they desired the abolition of the license money."

The aggregate of all that we have seen goes to show (and we had as well mention it here as elsewhere) that the climate of England is better

adapted to develop the agency of Guano than is the climate of the United States. In Peru, the aboriginal savages, as white men, in the ascendant, are prone to call all people whom they conquer and plunder, had built up great canals and works for irrigation, and had carried Agriculture and Horticulture to a high degree of improvement. Hence it was that *there*, though the climate is much more arid than ours, Guano was considered indispensable to the subsistence of the Peruvian population; for there they had the means to *irrigate* the crops whenever the Guano was applied. In England, on the other hand, the humidity of the atmosphere and their exemption, generally, from drouths, supply the place of irrigation; while in this country we enjoy not the means of irrigation, and are at the same time exposed to terrible drouths. And this, it is obvious, is one of the causes which this year has operated most inauspiciously for the use of Guano, begetting danger that what has been the result of the most extraordinary drouth almost ever known at that season of the year, when it should have been acting, may be ascribed to inertness or inherent worthlessness in the article itself, causing it to be totally condemned and rejected; for we cannot claim more than other nations that sedateness of character which should restrain nations as well as individuals from running suddenly from one extreme to the other.

With these preliminary observations, we proceed to submit the most recent notices and communications which have fallen under our notice —not having time or space, were it otherwise expedient, to turn to the foreign magazines, which are full of experiments to ascertain the value of Guano in itself, and as compared in every form of use, and result, with other manures. And first, from the June number of the SOUTHERN PLANTER, published at Richmond, Virginia:

"GUANO.—I wish to state the following facts for the benefit of the Agricultural community:

"This Spring I purchased of Messrs. Williams and Haxall a lot of Guano, which I applied as follows: I mixed Plaster with Guano at the rate of two measures to one, and applied of the mixture ten bushels to the acre on wheat. This was during the drouth. I afterwards repeated the application twice during a rain upon the same land, and up to this day I have not perceived the least beneficial effect from it. I also soaked some of my seed oats in brine and rolled them in Guano, without being able to perceive that it produced any effect at all. I also mixed it and applied it to corn in the hill, after the manner recommended by Mr. Petticolas, in the Planter, with a like result. In short, I feel constrained to say, that in my case the money and labor expended on Guano, have been entirely thrown away. JOHN MACKENZIE."

We stop here to transcribe from the American Farmer, vol. 6, page 316, 1824, what might perhaps better have come in previously. The extract is a translation from "*A Voyage to South America, by Don Antonio de Ulloa*," vol. 2, page 99. He says:

"This manure, used in the fields, sowed with Maize, and with proper watering, is found greatly to fertilise the soil, a little of it being put close to the stem and then watered. It is also in use in fields of other grain, *except Wheat and Barley*, and consequently prodigious quantities of it are used yearly."

In corroboration of the above statement, Mr. Bennet, near Brooklyn, a very industrious and intelligent farmer, told us yesterday that with potatoes and some other crops this year it had destroyed the seed, but he believed it was because he had used an over dose.

We next call up friend Tatum, of the Farmers' Cabinet, as truthful a man as lives, and very discreet withal:

"In walking one day last week, over the farm of Samuel S. Richie, which lies some eight miles from this city, and a mile east of the Germantown road, we were highly gratified with its general appearance, and with the proofs over every part of it of the close attention and good management of the owner. His lot of wheat—five acres—was really splendid, and the best we have seen this spring, unless it may be rivalled by William R. Tatum's field of fifteen acres, at Woodbury, N. J. The lot had wheat in it last season, and produced a miserable crop. All parts of it were manured last fall, either with Poudrette, Guano, Charcoal from the sugar refiners, refuse from the glue factory, or with Salt. These applications are now on their respective portions, doing credit to themselves, to the evident satisfaction of the farmer. He mentioned a little anecdote, which shows at any rate that there is virtue in Guano. While he was applying some this Spring on another part of his farm, one of his neighbors came along and ridiculed the idea of looking for a compensating return for such an expenditure. After he left him, he took a very small quantity—say half a pint—into the middle of his neighbor's oat field, which was near by, and strewed it round, so as to make on the ground, in large size, the initials S S R, of his own name. The editor accompanied him to the spot, and there were the letters in bold relief, shown by the rank growth and dark color of the oats, as plainly and distinctly as they appear on this page."

EFFECT OF GUANO, AS NOW EXHIBITED IN MARYLAND, ON WHEAT AND OATS.

SANDY SPRING, MONTGOMERY CO., MD., 5th Month 1st, 1845.

Esteemed Friend:—I have to report that my Guano experiments increase in interest as they advance to fruition. The first experiment on an acre of wheat, is likely to surpass even my most sanguine expectations. It is the most luxuriant growth I ever saw, so be so uniform and even in height, and regularity on the ground. The average height is from five to six feet, with heads quite in proportion. About two and one-half bushels was sown to the acre, but I am now satisfied another bushel might have been added, and the yield been in proportion greater. Not less than fifty persons have examined it; of these a large proportion were from Maryland, and some from the District, and Western

Virginia, and all pronounced it the finest and largest they have seen.

"One swallow does not make a summer," neither should a single experiment in Agriculture, whether adverse or otherwise, decide the matter definitely; but in no instance yet, has the Guano failed with me, to produce the most marked and decided advantage.

A strip through my oat field, of about forty feet wide, was sown with Guano at the rate of two hundred pounds per acre, and the adjoining land, (side by side,) with sixteen bushels of ground bones. All sowed alike, as near as could be, and at the same time; the part with Guano is now about twice as luxuriant as the other, and the color a much darker green.

I have used the Guano extensively on my corn, but the crop, (as is nearly all in this vicinity; some, I understand, have determined to mark off and replant the crop,) has been so injured, I may almost say destroyed, by the bud worm, that little effect is seen from the Guano. The appearance of the corn crop is not now near so good, as it was three weeks since. In addition to the bud worm, most of the corn planted in low situations was killed by a hard frost, which occurred the night before last; not "bit by the frost," merely, but killed outright.

Please ascertain of friend S. K. George, and inform me whether he, or friend Bartlett, can promise with certainty another supply of the pure Peruvian Guano, from the Chincha Islands, in time for our wheat crop; say by 1st September. I am sure the present crop will twice overpay me for its use, and I mean "to try it again," without the formality of "picking the flint."

In haste, I remain respectfully thy friend,
(Signed) EDWARD STABLER.

(From Hon. James A. Pearce, Senator, U. S.)

CHESTERTOWN, June 12, 1845.

GEORGE LAW, ESQ.—

Dear Sir:—The Guano which I purchased through you, in March last, has been applied to grass, wheat, oats and corn, in proportions varying from 120 to 300 lbs. per acre. I have supposed that you might be desirous to know with what effect, and therefore send you a brief statement. My first experiment with wheat was made in March, just after the heavy rains, and was followed by a long and severe drouth. 120 lbs. Guano, mixed with 80 lbs. plaster and 2 bushels coal ashes, was sown broadcast on one acre of wheat, the soil being the poorest and most silicious on my farm. The wheat has been somewhat improved, but the result is not striking.

The second trial was with oats. The ground having been previously plowed, 360 lbs. Guano, mixed as before, was sown on 1¼ acres, and immediately harrowed. Four days after the oats were sown, and harrowed in. The soil was generally an exhausted loam, one corner of the piece being a clayey hill side, with some gravel, and no otherwise improved than by a liming of 60 to 70 bushels to the acre last year. The oats are now better on the adjacent land, which was heavily manured last year for corn.

On the 20th of April I sowed 120 lbs. Guano, mixed as before, on 2-5ths of an acre of growing wheat—the soil naturally a good loam, but exhausted by long tillage. The wheat here is greatly improved—its color soon became much darker—the straw longer—it branched more, and the heads are nearly twice as large as those of the same kind of wheat on adjoining land, which was heavily ashed two years ago.

The young clover, too, is much finer on the guanoed piece than elsewhere.

My corn was guanoed on the 26th May, and as yet no effect is perceived, nor is any expected until we shall have a rain, for which we are suffering greatly.

So far, I am much pleased with the Guano, and am disposed to make larger use of it this Fall. Can you tell me whether any further importations into Baltimore may be expected this summer.

Very respectfully, your ob't. serv't.,
(Signed) J. A. PEARCE.

I have said nothing of my orchard grass, or clover, to which the Guano was applied, because *all* the land was guanoed, and no comparison could therefore be made; but I am satisfied that the Guano was of great service, as the crop was decidedly better than last year's.

PETERSBURG, June 13, 1845.

MR. GEORGE LAW—

My dear Sir: Our friend Mr. Pleasants has shown me your letter making enquiries as to the results of *our application* of Guano. This has been the most remarkable year and the most unfavorable for the success of that manure which could have occurred. During a part of the months of March and April, we had a drouth of six weeks, in which time the earth was never wet, and accompanied with cold north winds and frequent frosts. At this time we are suffering with a drouth of five weeks, a part of the time very cold, but *now* oppressively warm. On the 25th ultimo we had a frost which cut down all my field peas, (which had been resowed several times,) potato tops, and a good deal of corn. Under these circumstances you can see that Guano in the general way could not do much. The effect on tobacco plants, which were kept watered, has been astonishing, and also on cabbage plants and other garden vegetables which were not permitted to get too dry. I applied it on a piece of meadow last August at the rate of 200 lbs. to the acre and the effect during the whole Fall was very striking, and is still a fine growth, but the use of it this Spring on grass has not been so satisfactory, owing, no doubt, to the season. I used it in the same quantity early in May to the red-top or herds grass combined, with two bushels of plaster; in the course of two or three days it rained and for several weeks the guanoed portion far outstripped that on the adjoining lands. As the present drouth continued, however, it has fallen back and I can now see no difference between them.

With regard to the use of Guano on wheat I will state that the 23d October last I applied it just as the wheat was fairly out of the ground to three respective portions of sand, all joining, so that I could compare them—one with Guano alone, at the rate of 200 lbs. per acre—one containing 2½ bushels of plaster with the same quantity of Guano, and one with a like quantity of Guano and 2½ bushels of dripped ashes.—The whole of these lots gave a decided improvement over the contiguous wheat without there being any decided difference between the respective portions themselves; as the Spring drouth came on, however, the benefit of application gradually subsided as far as the eye could detect it. I made another application in April

which produced a green and vigorous growth to be seen at a considerable distance; this too appeared to lose its effect in a measure as the dry weather set in and as the wheat ripened. I think, however, there is some difference in its favor—I have cut it to-day and shall try and ascertain its comparative gain and will then write you the result.

I am very sorry to find that nearly all my young clover has died out under the hot dry sun of the last two weeks, but I think it is much worse where the Guano was applied. As far as my experiments have *gone* I consider Guano a most powerful stimulant and fertilizer, under certain circumstances. If there should be showers of rain or the land kept moist in any way it is valuable, otherwise it may even do injury. I have not yet used any to my corn, *but shall* do so and let you know the result. Mr. Stabler's experiment has been a very favorable one. Was the drouth as severe with him as it was generally through the country?

Yours, truly. (Signed) W. L. DUPUY.

PETERSBURG, Va. 13th June, 1845.

Esteemed Friend: Since I had the pleasure of receiving thy favor of the 7th, which reached me two days ago, I have visited some of my neighbors to ascertain as far as possible what had been the effect of Guano on their crops. The character of the season has been more unusual than any we have had, perhaps since 1816. What with the frost in the first instance, and then the drouth, (which yet continues,) vegetation is exceedingly feeble; and neither Guano nor any other manure could have its full effect. Such seasons, however, are perhaps less disastrous on wheat than any other crop. I can recollect that 1816 was a great wheat year; and I have heard the old people often say that in 1806, when there was no rain from early in April till the middle of September, and when the ears of wheat hardly emerged from the boot, there was a bountiful crop. The harvest in this neighborhood is now about being completed, and the crop appears to be a fair one. As far as we can judge at present, the Guano has produced a marked effect in every case, where it has been applied, but one. This being one of Dr. Dupuy's experiments, he will communicate it to thee, as he is also writing by the same mail with this. His other experiment, considering the lateness of the season when the Guano was laid on, may be regarded as very favorable. The experiments of Robert Strachan, which I have mentioned in former letters, are altogether satisfactory to him. Some time since he expressed the opinion that the increased crop would pay for the Guano three times; and he informed me yesterday he had yet no reason to change his views in regard to it. His crop had been just harvested, and put up in hand-stacks on the land; and as far as could be judged from appearances he will not be disappointed in the estimate he formed. On oats, there is a very beautiful experiment on the farm adjoining me. Indeed, I have seen no kind of crop on which the Guano acts more energetically than on that of oats. I confess, however, I have seen nothing that can be at all compared with the wonderful effect upon Ed. Stabler's wheat, as described in his letter to thee; for the copy of which I feel much obliged. I had heard of it indirectly some time since; and a few weeks ago there was a letter from E. S. to J. S. Skinner, published in the Agricultural department of the Albion. I cannot account for the extraordinary growth, but by supposing that there had been plenty of moisture. It will be highly interesting to ascertain the product, though I cannot agree that it would have been proportionably increased, if he had used 3½ instead of 2½ bushels of seed. If it had been thicker the ears must have been smaller. My experiments have been very diversified, and on almost every kind of vegetable usually cultivated in market gardens, and though in some few cases of rather recent application, the effect has been inconsiderable, owing to the peculiarity of the season, yet altogether I have reason to be highly gratified. On Irish potatoes nothing could act better. Applied side by side with the best manure, at the rate of 300 lbs. of Guano and more than 100 cartloads of manure to the acre, the guanoed potatoes came up sooner and much better, and grew off more rapidly. The difference was very great for a long time, though it is less obvious now, the manure retaining moisture during the drouth. I shall ascertain shortly what will be the comparative product: as yet we have only dug the guanoed, which are very fine, and the yield very abundant. In addition to the Irish potatoes, I have tried the Guano extensively on the sweet potatoes. It is too early yet for it to manifest itself decidedly, but the vines are of good color, though small. For raising all kinds of plants for transplanting, such as cabbage, celery, tomatoes, tobacco, &c. it is superior to any other manure. The beds require less picking, which is a tedious operation. I prefer to apply it frequently in the form of a weak solution; but with seed of strong growing plants, such as cabbages, radishes, and the like. I prepare the beds by sowing the Guano broadcast, at the rate of 300 pounds to the acre, then chop it in, and afterwards rake in the seed. In that quantity I have not found it to impair the germinating powers of the seeds. I have succeeded worse with melons than any thing else; though with cymlius on a somewhat moist piece of ground, it has acted finely. The melon vines, however, are improving; and when the rain comes I hope they will make good progress. In a nursery of young peach and apple trees, the effect has been as decided as on any other growth whatever. The ground on which they grew, is very thin, and from the pale, sickly color which most of them exhibited last summer, I apprehended they would not come to much. But, since the application of Guano, the color has changed to a dark, rich green; and the young shoots have put out with great vigor. On cabbages I have not yet tried it, my early crop having been manured in the Fall and Winter; but I have a good deal of land prepared ready for being set out with plants for Fall and Winter cabbages, as soon as there comes a season. On early planted corn, on moist land, the Guano shows itself very well, but not with late planted on high land. In fine, considering the character of the season, the results are in almost every way satisfactory, and my confidence in its virtues is undiminished. Nevertheless, I hear some people cry out against it, and represent it as valueless.

In the last Southern Planter, there is a communication from a gentleman who states that he has made various trials, and in every instance there was no perceptible effect. He does not state from whom the Guano was obtained. [On reference to his article, I find I am mistaken:

he obtained it from Williams & Haxall, though I don't know of what cargo.] But in the face of such a cloud of witnesses, I am at a loss to perceive how any intelligent man can risk his reputation by publishing it as worthless. That there will sometimes be failures, may very readily happen. I have experienced them myself; and I have sometimes found the best manure to lie in the ground entirely inert, without being able to account for it. Colman, in his last number, acknowledges there have been failures in England: the only wonder is that with a new and powerful article the failures have not been more numerous, from injudicious applications,—the testimony in its favor could not well be stronger. In a previous letter thou made some inquiry as to the best time for applying Guano to corn. In one of the discussions of our Agricultural Society, I submitted the inquiry, in the hope that some member might be able to give a satisfactory answer, by refering to the action of other manures. One of our best farmers stated that he had frequently applied well decomposed manure to corn, when it was in the shoot; and even in silk and tassel, the effect had always been to increase the size of the ear without adding to the growth of the stalks. He added that he had been surprised at the prompt action of manure applied so late. Without any experience on the subject, my opinion is that there should be two applications to corn: one at the time of planting or weeding, enough to give the young plants a start, but not to force them too much; and the other about the time of shooting, or a little before, according to convenience. His is the Peruvian mode, and it is not likely that we can adopt a better. I have heard of several persons who have condemned the use of Guano on tobacco beds. To show how easy it is to raise tobacco plants in a manner entirely different from the old way, I will give the experiment I made. A tobacconist in Petersburg having some very rare tobacco seed, requested me to sow them for him. On the 1st of May, I selected a piece of old but rather moist ground, reduced it to fine tilth, but neither manured nor burned it. Having previously prepared the seeds by sprouting them, I sowed them on the bed, and in a few days they began to come up. I did nothing but apply a weak solution of Guano about twice a week, and keep the bed clean; and by the end of May there were some plants large enough to set. I have never seen a more flourishing patch.

As the season advances I shall be very happy to communicate with thee, and exchange such information as we may acquire.

I am most truly thy friend.
(Signed) T. S. PLEASANTS.

To GEORGE LAW, Baltimore.

[Communicated to the Farmer and Mechanic for publication.]

AMERICAN INSTITUTE,
New-York Farmers' Club, June 17, 1845.

Col. EDWARD CLARK in the Chair.

So much of the minutes of the last meeting was read as related to the question of Culture of Corn.

Mr. Meigs read the following letter from William B. Oddie, Esq., of Rockland:

ROCKLAND, June 9, 1845.

H. MEIGS, Esq., Sec'y:

Dear Sir: I have used Guano in a liquid state to steep seed in, and find it far before any preparation of salt-petre, ammonia, &c. For corn there is no thing better. I planted a new piece of ground, plowed it for the first time this Spring, and dropped the seed, after allowing it to soak two days in the above mixture, and found that it came up four or five days before corn planted at the same time without Guano being used. The color of the leaf is a deep green and the stocks stout, and, notwithstanding frost and drouth, grows rapidly. I used one pint of Guano to four gallons of blood-warm water, immersing the grains, after straining well. You would be astonished to see what an admirable emetic it is for the crows—they have visited the field once, but requiring no more medicine they have since kept aloof—the best scare-crow extant. I believe that Guano, used as above, has the temporary effect of giving the plant a fine impulse, when, as its roots distend, they have the good old fashioned stable, cow or hay manure to sustain them. Yours, respectfully,

WM. B. ODDIE.

On the question of its *permanency* (an important point,) we took occasion, in the delivery of a discourse in September last, at Wilmington, Delaware, to remark:

"It may be fair to presume, however, from the promptness and energy of its action, and the very moderate quantity usually applied, that it will not be so enduring as a heavy dressing of putrescent manure."

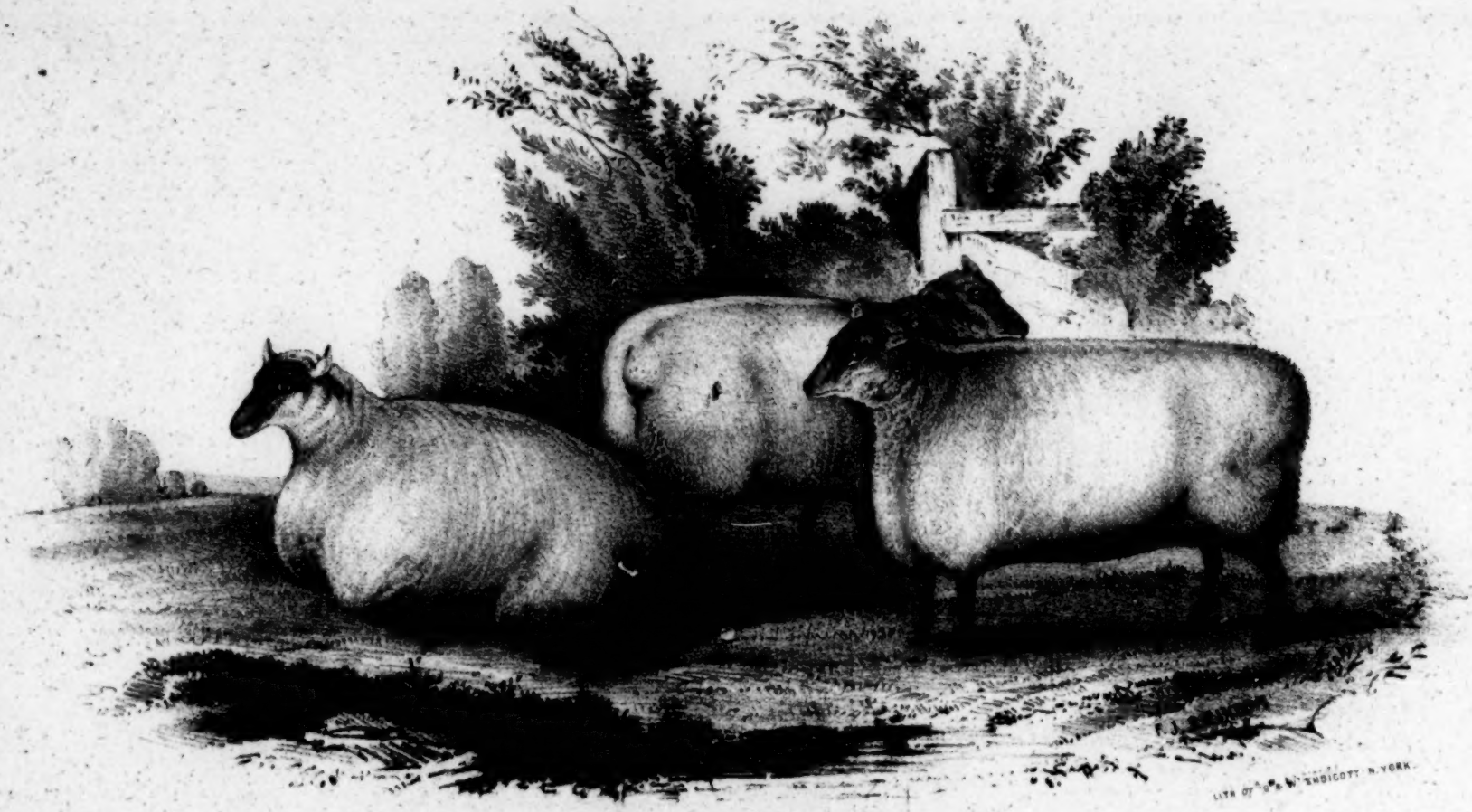
But against that apprehension we find in Mr. Colman's last Report he says:

"It has been questioned whether its effects will be permanent. I can only answer, that I have seen its obviously beneficial effects three years after its application, upon grass. How much longer its efficacy may be expected to continue, experience only can determine."

The cases of application this year have been sufficiently numerous and variant, and the effects, it is to be hoped, noted with sufficient exactness to settle the question beyond all dispute at what price it may be expedient to use it. Any manure of a portable nature and condensed efficacy, must be very valuable as applicable to tobacco and other *plant beds*, where the embryo, as it were, of large field crops are to take their first growth within a very small space. Might not planters of tobacco contrive *always* to have plants by watering their beds with a solution of Guano, or of the sweepings of pigeon and poultry houses? But nothing can be done out of the common track without some personal energy and perseverance. The half very often consists in *beginning to do a thing.*

WALNUTS.—I beg (says Juglans) to call the attention of the public to the advantages of planting those ornamental and productive trees, the wood being very valuable. With regard to culture, sow the nuts in beds, which should be kept free from weeds, and at the end of three years plant finally 160 trees to the acre. Walnuts will grow in the poorest soil, and mixed with the forest trees form good belts, &c. In the tenth year they will begin to bear, and taking the average produce per tree at only one bushel, the value of which is 10s., they will give £80 per annum for the acre; deduct 6d. per bushel for picking, and £2 a year for the land, and it will leave £54 of clear profit. The expense of planting, first cost of seed, and every expense included, will be about £2 per acre.

[English paper.



LITH OF J. & W. ENDICOTT N. YORK.

SOUTHDOWN PRIZE WETHERS,

Exhibited at the Smithfield Show

New York, Published by Greeley & Mc Elrath for the Farmers Library, J. S. SKINNER, *Edr.*

SOUTH-DOWN SHEEP.... FORM AND QUALITIES.

We shall endeavor to present to the patrons of "The Farmers' Library and Monthly Journal of Agriculture," the true forms and properties of the various species of Domestic Animals —not with an air of exaggeration as a fancy sketch of the perfection to which they might be brought, but as a genuine picture of the best, such as skill and care have actually made them, in countries where they are supposed to have attained their highest degree of improvement.— The object is, that the farmer may have before him a standard of attainable excellence, up to which every man of proper pride will endeavor to bring his own; for as little can be hoped for from a farmer without pride, as from a soldier without ambition, or a housewife without cleanliness or diligence.

The selection, for the first number, of portraits of South-Down Sheep, was not to indicate any partiality for that over other breeds; it was rather a matter of chance. All other breeds, which may be regarded as well adapted to the peculiar circumstances of any considerable district of our country, will, in turn, be in like manner illustrated, and their properties impartially described.

The portraitures given in this number are found in an English work of authority and great research on Wool, Woolens and Sheep, where they are given to represent three South-Down Wethers of Mr. Grantham, exhibited at the Show at the Smithfield Club in 1835.

In the work before us, it is stated that the average dead weight of the South-Down Wether varies from 8 to 11 stones; but Mr. Grantham exhibited a pen of three in the Show of the Smithfield Club, in 1835, one of them weighing 20 stone 3 lbs., a second 20 stone 6 lbs., and a third 21 stone.

From the same work we take, as characteristic of this breed of Sheep, as follows:—

"The next is the hill sheep, adapted to more elevated situations and shorter feed in the natural and permanent pastures; able also to travel without detriment a considerable distance to the fold and to the Downs. There can be no hesitation in fixing on *the South-Down* as the model here.

"The following is the substance of the description of this sheep by Mr. Ellman, who, if he may not be considered like Mr. Bakewell with regard to the Leicester, as founder of the breed, yet contributed more than any other man to its present improvement and value.

"The head small and hornless; the face speckled or grey, and neither too long nor too short. The lips thin, and the space between the nose and eyes narrow. The under jaw, or chap, fine and thin; the ears tolerably wide, and well covered with wool, and the forehead also, and the whole space between the ears well protected by it, as a defence from the fly.

"The eye full and bright, but not prominent. The orbits of the eye—the eye-cap, or bone—not too projecting, that it may not form a fatal obstacle to lambing.

"The neck of a medium length, thin towards the head, but enlarging towards the shoulders, where it should be broad and high, and straight in its whole course above and below. The breast should be wide, deep, and projecting forwards between the fore legs, indicating a good constitution, and a disposition to thrive. Corresponding with this, the shoulders should be on a level with the back, and not too wide above; they should bow outwards from the top to the breast, indicating a springing rib beneath, and leaving room for it.

"The ribs coming out horizontally from the spine, and extending far backward, and the last rib projecting more than the others; the back flat from the shoulders to the setting on of the tail; the loin broad and flat, the rump long and broad, and the tail set on high and nearly on a line with the spine. The hips wide, the space between them and the last rib on either side as narrow as possible, and the ribs generally presenting a circular form like a barrel.

"The belly is straight as the back.

"The legs neither too long nor too short. The fore legs straight from the breast to the foot: not bending inwards at the knee, and standing far apart both before and behind, the hocks having a direction rather outward, and the twist, or the meeting of the thighs behind, being particularly full; the bones fine, yet having no appearance of weakness, and of a speckled or dark color.

"The belly well defended with wool, coming down before and behind to the knee and to the hock; the wool short, close, curled, and fine, and free from spiry projecting fibres."

Of Mr. Webb s sheep, referred to by Mr. Stevenson, and of the very ram he brought home with him, and which, unfortunately, it seems he has lost, we find the following notice by Mr. Allen in the Agriculturist, vol. 1, page 104, founded on personal knowledge and observation:—

"To give an idea of the weight of Mr. Webb's animals, the buck selected for Mr. Rotch, though only six months old, weighed 152 lbs. on the scales; Bishop Mead's, eighteen months old, 248 lbs., and Mr. Stevenson's, same age, 254 lbs., while a wether, exhibited at Cambridge on Christmas-day, 1840, weighed, dressed with the head on, 200 lbs., aside from yielding 28 lbs. of rough tallow. The average weight of his wethers, however, at eighteen to twenty months old, is but about 30 to 35 lbs. per quarter. The bucks shear from 9 to 11 lbs., and the average shearing

of the whole flock is 6 lbs. 15 oz., and of a quality of wool that we thought better in the generality of South-Downs. The fleece is close and compact, and we should think would resist rain, sleet and snow, nearly as well as the best merinos."

Being aware that two of our most eminent citizens—Mr. Webster in the North, and Mr. Stevenson in the South—had both selected Sheep of this breed to bring home to America, we were naturally, as it will be admitted, curious to know what coincidence of views had prompted the choice of the same breed for regions of country so essentially different in most of the circumstances likely to influence a choice of stock Sheep. Accordingly application was respectfully made to both, in the confidence that they would be alike ready to state, as we knew they had been alike disposed to take note of whatever they could discover in the Agriculture of England that could benefit the landed interest of their own country. This explanation is given to show how it is that we have been so fortunate as to draw from Mr. Stevenson the very interesting letter which follows, quite enough in itself to justify our anticipations and to evince his deep anxiety for the redemption of the Agricultural prospects of his noble State. We will only add that, lively as is our sense of obligation for the promptness with which he has answered to the call we ventured to make upon him, we hope to be often subjected to the same impressions. Mr. Webster's engagements here in causes of great importance, left him no leisure to descant on topics more congenial to his natural temper; but when he shall, in July, get quietly seated under his umbrageous elms at Marshfield, we shall hope to have some kind friend there "takin' notes" of his observations on English Agriculture, as adopted and not adapted to the United States.—*We shall see.*

Correspondence with Hon. A. Stevenson.

Office of the FARMERS' LIBRARY,
NEW-YORK, 6th May, 1845.

DEAR SIR:—I persuade myself that in the subject of this you will find some excuse for the demand it is designed to make on your known partiality for Agriculture, as well as on your personal kindness. Circumstances beyond my control have driven me here to reside, where, I am sure you will be pleased to learn, I have found agreeable employment for all my time and anxiety, in the editorial management of a journal to be devoted impartially and exclusively to Agriculture. The design and plan of it is explained more particularly in the accompanying paper. It would not become me to ask your patronage of it, at least not until you can better judge of its merits by a sight of the first number; nor, indeed, at any time should I deem your patronage in any shape so acceptable and auspicious as in that of communications, such as your observation and experience so well qualify you to make. The most particular objects of this, however, are to bespeak an indulgent reception of the first number, and the favor of letting me know as to your South-Downs enough to constitute historical memoranda of the particular race from which they sprung, and the particular considerations which led you to the selection of that breed.

There are, I am aware, very strong attractions for sheep husbandry in Virginia. Will you permit me to inquire what you regard as the most formidable obstacles to its extension in that and more Southern States—especially in the vast extent of their more hilly and congenial districts, as such districts are known to be.

I made an earnest effort, before I left Washington, to get for the "FARMERS' LIBRARY" a portrait and memoir of that eminent promoter of Southern Agriculture, Col. John Taylor, of Caroline. With every courteous disposition on the part of his son, Mr. W. P. Taylor, to meet my wishes, they have been grievously disappointed. It was not that anything was necessary to revive my recollection of, or to augment my sensibility to, the value of his services; but I was desirous, by the renumeration of them now, to hold him up in a stronger light to the rising generations, as one of the greatest benefactors of the *land*—one of whom it may be said, as it may not of all good writers on Agriculture, that his zeal was not ahead of his practice—one who, in a word, stimulated men to *think*; without which no signal improvement is to be achieved in one art more than another.

I still cherish the hope of getting what may approach what I sought in reference to the author of ARATOR. Mr. Madison, too, of course will have a place in the Library as the President of the Albemarle Agricultural Society, and author of one of the best (if not *the* best) addresses from any friend of the cause.

I cannot forbear the opportunity to express my humble gratification at the formation of your State Society for the promotion of the Agriculture of your State. It will come in for a full share of attention in the periodical I am engaged to conduct. With science and experience as you have in the head, and such activity and intelligence in the members, of your Association, its ends must be accomplished. There is radical evil somewhere: it is time to probe it, boldly and fearlessly, and to look for the cure.

I pray you pardon me for troubling you with a more extended exposition of my undertaking than I had intended.

The first number will appear on the first of July, and will contain Portraits of South-Down Wethers, taken from Bischoff's work on Sheep

and Wool and Woolen Manufactures; and these portraits it is desirable to accompany with remarks on the peculiar qualities which adapt them, under certain circumstances, to the use of American Farmers.

With great respect and esteem,
I remain, Sir, your obedient servant,
J. S. SKINNER.

To Hon. ANDREW STEVENSON,
Vice President Virginia Agricultural Society.

THE RETREAT, near Richmond, June 16, 1845.

My dear Sir: On returning home, after an absence of some weeks, I found your kind letter, with the accompanying *Prospectus*, for the new Journal of Agriculture which you are about to edit. This was the first intimation I had received upon the subject, and I beg you to believe, that I was as much gratified at receiving your letter, as I shall be instructed and edified by your Journal, to which I most gladly become a subscriber, and now enclose in advance the first year's subscription.

Whilst you do no more than justice in regarding me as the warm and devoted friend of Agriculture, you greatly overrate my ability to render to it that aid which I should be happy to afford, and which many of my friends are pleased to anticipate. The truth is, I have neither the information, or time, to enable me to add much to be common stock of agricultural knowledge, and you must, therefore, set me down for little else than one of your constant readers; an occasional correspondent and contributor to your Journal; and one of its fast and devoted patrons. This is all that I have it in my power to promise, and so far I am willing to stand committed. I rejoice, my dear sir, to see you once more in the field "giving note of preparation," not, however, for *battle or slaughter*, but as the *friend* and *champion* of the arts of Peace. The laurel which entwines the *Hero's* brow is bathed in blood and wet with the tears of the widow and orphan, but the civic wreath of the *Husbandman* is green with his own woods unstained with gore, and unmixed with cypress. Go on, then, and devote your talents and labors to objects so worthy of them, and by which you will confer benefit as well as honor upon our common country. In this good work God speed you success.

Of the importance of Agriculture, in a physical, moral, or political point of view, I need say little to you. If, with the wisest, the richest, and the most powerful nation, Agricultural pursuits have ever been esteemed the most honorable, as well as the most useful employments of man, how much more should this be the case in a country like ours, where the Institutions, Government and People depend so essentially upon their successful operation. Indeed, Providence seems to have decided for us the great question of preference, so long agitated by political economists. We are, and must continue, if we expect to remain free and prosperous, emphatically an *Agricultural* People. And does not self-interest, as well as patriotism, combine to stimulate us to the improvement of our systems of husbandry? What nation has ever existed celebrated for its advancement in civilization and the arts, in which the marked encouragement of Agriculture has not been admitted? And yet, what country on earth so deeply interested in its success, has shewn less attention to it than our own? The spirit of improvement has not only been suffered to languish, but its essential and vital interests, have been shamefully neglected. Who can witness, my dear sir, without deep mortification, the stream of emigration from the whole of our Atlantic border to the Western portions of our Union? How many persons do we daily see selling their farms at low prices and relinquishing their birth-places and friends to settle in the rich vallies of the West, from a supposed inability to support themselves on their poor and exhausted lands. Is not this the result of gross mismanagement and a continued perseverance in the old and wretched system of cultivation? How long are we to be doomed to this state of things? And are we never to profit from the experience of other nations? Whilst in Great Britain *nine-tenths* of the lands are leased to tenants who pay from 30 to 60 shillings sterling per acre, and find every thing for husbandry, they can even on these terms grow rich; yet we, (at least at the South,) without tithes or heavy taxation, and with numerous laborers, can barely make out to support ourselves from the products of our estates. I have seen it stated very recently, on the authority of some eminent British statist, that to supply the United Kingdom of Great Britain with the article of wheat alone, would take the employment of the whole British Navy; and to bring all their Agricultural Products, as now enjoyed, would take the navy of the whole world. To ascertain this, it would only be necessary to take the average consumption of each inhabitant, and multiply the annual amount by the whole number of the population. England, as you know, has been called a *garden spot*, and such it justly may be regarded, when with a territory not larger than that of New-York or Virginia, it can support a population nearly equal to that of the whole United States. It is alone by skill and industry that they resist the danger of excessive population pressing upon the means of subsistence, and thus enable them to supply an increasing population, not only with the same but a much better description of food from the same districts of country. Now, to what is all this to be attributed, but to *superior productiveness* occasioned by *superior cultivation*, and the addi-

tional fact, that they cultivate no more land *than they can manure and improve.* It was, I think, the late Lord Leicester [Mr. Coke] who once said that the great and prevailing error in English Agriculture was what he called over-plowing, and having more land under tillage than the quantity of manure would justify. This, I think, is one of the great evils in our system of cultivation. If, on the contrary, we were to limit our tillage to our supply of manure, what an increase of old and exhausted fields should we witness? and yet I am convinced that our planters and farmers would be in much better and more prosperous circumstances. Our rule, however, seems to be, that having so many laborers we must necessarily cultivate a great deal of land, whether it be rich or poor. This is one of the errors of our Agriculturists, and it therefore becomes important to convince them that means exist by which their poor lands may be fertilized and rendered profitable at much less expense, and by which their landed property, as well as the comforts of life, might be greatly increased; and that these means are in their own power. This is, doubtless, a subject which will command attention and engage your vigorous pen. I flatter myself also with the hope that your Journal will not fail to notice another important matter connected with the Agricultural interests of the Middle and Southern States. I mean the internal communication of the country and the transportation of our Agricultural Products. Our produce, until it reaches the market of exportation, does not change its character of interest. It is still the planters, and only becomes an article of commerce when it touches the hand of the merchant. The transportation, therefore, to market, is as intimately connected with its value as any process of its previous preparation, and the planter and farmer have, therefore, a deep interest in the improvement of the internal navigation of the country. To accomplish this, we shall require not only the aid of the press but the continued and enlightened influence of the whole Agricultural community. Indeed it should be borne in mind that in governments founded upon republican principles, national enterprises, to be successful, require the support of general sentiment and feeling. *Public opinion* must therefore lead while government follows, to organize the means of carrying into effect the popular will. It will need, also, the enlarged views and enlightened policy of our State Governments.

You ask me in your letter for some account of my South-Down Sheep, imported three years ago, and the reasons which led to their selection. I regret to say that I have been unfortunate with the lot. I had the misfortune to lose the buck and one of the three ewes soon after their arrival in the United States. I attributed the loss to the voyage. The result has been that I have now only the half breed. Concurring in the general opinion that the breed of Sheep, to be reared, ought to be selected according to the nature of the pastures and the artificial means of supplying food, I gave the preference to the South-Downs, over all the other breeds, for this section of country.

In selecting a mountain breed, for instance, for rearing in *low arable land*, the advantage would be lost of producing a larger and a finer class of animals; and so, on the other hand, if a low-land breed is carried to a mountain region, an evil of a different kind is committed, much more hurtful; for a fine stock would be ruined if placed in a situation where it could not be maintained. The South-Down I found adapted to most situations in the midland parts of England. Besides their beauty and fullness of form and propensity to fatten, they had patience of occasional short keep and an endurance of hard stocking, equal if not superior to any other sort, with an early maturity scarcely inferior to the best of the *New Leicesters*, and with flesh of an equally fine grain and flavor. They were, moreover, better suited to an extensive range of light soils, and to our natural and permanent pastures. Another reason, too, was their good and abundant wool, and their supposed hardiness and good health. These were the reasons of my preference for the South-Downs. I was particularly anxious in selecting to get a fine male sheep—I did this upon the ground that, as respects both cattle and sheep, the opinion was general and doubtless correct, that in most cases the qualities of the male parent predominate in the offspring, and the more indifferent and the worse bred the female was the more this would be the case when she was put to a well bred buck. I procured the ram and ewes from the folds of Mr. Jonas Webb, of Cambridgeshire, who, I think, is justly esteemed one of the most eminent breeders in England. He obtained at the Show of the Royal Agricultural Society of England, at Liverpool, in 1841, three of the highest premiums for his South-Downs, over all the competitors of the United Kingdom. Virginia has many advantages for breeding sheep, not surpassed in the United States. The middle part of the State, and especially the whole range of the South-West Mountains and Blue Ridge, afford the greatest facilities for fine *sheep-walks*. Hills covered with fine herbage, extensive enclosures, abundance of running water, and well sheltered by trees against the heat and sun of summer. But the prejudice which the late Col. John Taylor, of Caroline, (who, by the bye, did more for Agriculture than any man in America,) had against sheep, has been the means of rendering this description of stock unpopular in

many parts of the Southern country. You will remember that some years ago he expressed the opinion, "*that they consumed more food in proportion to their size than any other stock; that they were more liable to disease and death, and that they could never be made a profitable stock throughout the extent of the warm, dry climate of the United States, without banishing tillage from vast tracts of country.*" Now, without examining in extent this opinion, I think I may venture to say that this denunciation of this peaceful and valuable race of animals (from which we draw so many of the comforts and luxuries of life) is not concurred in by any large portion of American Agriculturists; and that if this distinguished patriot and statesman had lived at this day, he would have changed this opinion. But I must cry you mercy, and forbear. I have spun out this letter to an unreasonable length, and can only promise not to tax you in this way again. Under your auspices, and that of your distinguished and scientific colaborers, Agriculture, I trust, will soon rear her head and recover her vigor; and whilst Commerce plows the wave, Agriculture will laugh on the land, and Peace requite us at home.

Very truly and cordially, believe me, my dear Sir,
Your friend and ob't serv't.
A. STEVENSON.

To the Editor of the Farmers' Library.

SOUTHERN AGRICULTURE.

To the President and Directors of the "Virginia State Agricultural Society."

It was with no slight degree of pleasure that I received the pamphlet containing the "Constitution and Proceedings of the Convention for the Formation of a State Agricultural Society," at Richmond, on the 20th of January last.

This pamphlet, with the names it contains and objects set forth so clearly and forcibly, revives pleasing, sacred recollections of friends whose countenance to me has ever been warm from the heart. The name of Virginia itself recalls to mind many of the most illustrious ornaments of our history. The State which, with many other illustrious men, has produced a Washington, a Henry, a Marshall, a Jefferson, a Madison and a Monroe, may well claim a place among the most exalted communities of the earth. It must, therefore, be a source of sincere pleasure to every patriot, to learn that a spirit has manifested itself among the descendants of these great men to meet *their obligation of honor*—to call into action the abundant intellectual and physical resources of the *noble and variegated district of this Union* embraced within the limits of Virginia.

Let us pass, then, at once from the retrospect of what we can all feel, but which language is too poor to express, to cast a glance over the actual condition of a region so rich in all the natural elements of growth and prosperity. In my humble labors to advance the various industrial interests of our common country—beginning with the old American Farmer, in 1819—the generous public of your State have given me so many proofs of kindness and confidence, as to embolden me to offer to them this statistical retrospect, in some respects painful, but indolent acquiescence in them only can make the results humiliating. Gratitude to your citizens, as well as my position here, as the conductor of a work designed to form, in the course of its publication, a *Library for American Farmers*, conspire to enforce upon me the duty of frankness in whatever I shall from time to time venture to say, as I shall often say what occurs to me as best calculated to redeem the agricultural condition of the old tide-water States South of New-York.—The suggestions which may be made respecting Virginia, her resources and means of recuperation, will be applicable in a great measure to all the rest; let that be borne in mind as we proceed. The needful discrimination may be safely left to all intelligent and reflecting readers.

A high sense of moral and political right produced the Declaration of Independence. The sentiments, then a passion, though abated in their intensity, yet burn, and we hope ever will, in the American breast; yet their influence had produced different effects in different States, from local causes.

Virginia, from her commanding position, superior force, and the great intellectual elevation of her leading men, was naturally led to the examination of *great State questions*, and to overlook her material domestic interests. It was, of course, a consequence, that the policy of the State would become such as to render undue devotion and employment of mind and time to *party politics*. In a society so eminent as is that of Virginia for mental improvement and power, the discussion of any subject which should arrest general attention and strongly enlist the feelings, would naturally engross too

much of the time and withdraw the energies of the greatest minds from personal application to interests which cannot be neglected with impunity. That most vital interests have been neglected in your State, is matter which cannot be denied, however much regretted; but when we direct attention to the causes of that neglect, we cannot but express high respect for the generous feelings of the people. That Virginia has not advanced, in either population or wealth, in proportion to other States of the Union possessed originally of less natural advantages, must be admitted; and devoted as has been the heart and hand of him who addresses those whose friendship he warmly cherishes, they cannot take amiss his advice to *look their actual and comparative situation firmly in the face.* The formation of your Society, we may hope, as I before said, is the foreshadowing event of a most salutary change, a counter-revolution which may restore Virginia to the rank in the confederacy which is due to her from relative extent of territory, and more particularly from *relative position.*

If her soil has been exhausted by improvidence, the materials are at hand to restore it—of this truth you have been most ably advised by your distinguished President—but in that respect she does not suffer by comparison as much as is generally supposed. In the last volume of the New-York State Agricultural Society, you will see it stated by its zealous and efficient Secretary, Mr. O'Reilly, on authority not questioned or questionable, that such had been the depreciation of the wheat crops, owing to *exhaustion of the soil,* consequent on ill-judged farming, that the product of wheat lands between Seneca Lake and Niagara River has not, for the last three or four years, *exceeded the low average of eleven or twelve bushels per acre!* Indeed, he had authority for declaring that in reference to a single county (Seneca) possessing unsurpassed natural capacity for producing wheat, the average yield is now not over *ten* bushels per acre, on lands which twenty years ago freely yielded twenty." Is the wheat crop better, asked Mr. O'R., any where in Western New-York than in Seneca? Thus, Farmers of Virginia, you see that other States have been running the same career of improvident cultivation that you have, and with like results, "always taking out of the meal-tub, and never putting in, will soon come to the bottom," is a simple illustration by a wise man that any fool may understand; but while your generous nature will forbid your deriving any consolation from the knowledge that others have been in their agricultural practices as incautious as yourselves, it behooves me to draw your attention, as I shall in some early future number of the Farmers' Library with some minuteness, to what is now doing in New-York to arrest the progress of agricultural exhaustion, to enable her to hold on her course of rapid growth in all that gives population, wealth, power and political predominance to States. To return, now, to Virginia.

The most valuable of her unbounded resources remain; for there are yet her spacious bays, fine navigable rivers, her inexhaustible beds of iron, coal, and beds of shells and marl, her internal lakes of salt water, her forests and diversity of soil, and central position on the Atlantic coast, with more than ordinary temptation and facilities for internal improvements. But, as we before said, there are other States than Virginia interested in the views we shall present, for such a member, bearing so large a share in the national mass, cannot advance or recede without affecting the whole body politic. In one connexion her interests and fate are identified with all whose staples are the same and produced by the same species of labor.

The subjoined tabular data will serve to show the wide field of enterprise presented by Virginia, not only to her own citizens, but to emigrants who pass by the advantages there offered, to seek far less certain comfort and fortune in the central or more distant section of the Continent. With some intermingling and identity along the lines of separation, Virginia is divided into three natural divisions: the *Eastern* or alluvial, the *Central* or mountainous, and *Western* or Ohio section.

Time and space do not allow us to compile and present (as it might better answer the purpose in hand, to do) the population of *each County,* of each Division at the several periods; but taking, first, the alluvial or "Lower Virginia," embracing thirty Counties, and it will be found that they contained a population in 1810 of 258,246; in 1820, 260,524; and in 1840, a population of 273,240—being an increase of only 14,994 in a period of thirty years.

Here, then, we have a section of Virginia, comprising an area of 8,875 square miles, of the most anciently inhabited part of the State, on which the population is distributed at the rate of very little more than 30 to the square mile, and on which the ratio of increase was only 1.05—one and one-fifth per cent.—*in forty years.*

It would be difficult, if not impossible, to find another equal surface of the earth—so abundantly supplied with navigable bays and tide-water rivers. Here, too, opens, in many respects, the finest bay of the American coast, from Cape Horn to Labrador. It would be in vain to ascribe this phenomenon in human population to any defect of the soil, or insalubrity of the climate. In an early volume of the American Farmer, it was shown that in a certain area of a tide-water eastern shore County of Mary-

land. (Talbot,) was to be found the greatest aggregate age in a like extent of equal population, probably, in all the Union. It would be hazarding nothing to assert, that with its soil and facilities of navigation, the surface of these alluvial Counties would not (with a skillful exercise of human industry and talent acting on its resources) be crowded in conveniently, with a five-fold greater number, or, with 1,300,000 inhabitants!

To blink these views would be about as wise as the whistling of the boy to keep off ghosts as he rides along, unexpectedly benighted, by an old country church-yard.

Let us now take up the Counties which constitute strictly *Middle Virginia*—embracing 36 Counties. Of these the population, in 1818, was 447,547; in 1820, 486,555; and in 1840, 510,930.

Comparing the population of these Counties, as it stood in 1810, with that of 1840, and also with that of the intermediate year 1820, we see how slow was the increase even where there was any, and in some of the Counties there appears to have been an actual decrease between 1820 and 1840! It is true that in some cases these diminutions have arisen from division of Counties, but the general results, however, are in no serious manner affected. The ratio of increase during the same period of 30 years from 1810 to 1840, was here, again, but 1.14 per cent. and, what is yet more significant of decay, (for in such cases, with your neighbors pressing forward, *to stand still is to go backward*,) the ratio of increase during the last period of 20 years from 1820 to 1840, was only 1.05, corresponding with that in Lower Virginia in the period of 30 years from 1819 to 1840.

Assuming the population in the aggregate of these thirty-six Counties in Middle Virginia, on an area of 24,300 square miles, to amount now, in 1845, to 534,600, and the distributive population would then be only *twenty-two to the square mile!*

The area of England has been variously estimated at from 50 to 57,960 square miles, and its population, according to the census of 1831, was 13,894,569, and in 1841, according to the latest authority within convenient reach at this moment, was estimated at 16,000,000. Supposing England and Wales, then, to have a population at this time, of 16,500,000, as we may, and the square miles to be 55,000, and we have a population of 300 to the square mile—with about one-fourth part of the soil estimated yet to be uncultivated. All Europe, with a population of at least 250,000,000 on a surface of 33,000,000 square miles, sustains about 75 to the square mile. These comparative views are given to show the vast capabilities of Virginia; but how do the navigable rivers of England compare with those of Virginia? Take into view the entire extent of Europe, and there is no risk in estimating *Middle Virginia* as capable of sustaining a more dense population than now exists in Europe, surface compared with surface; but even with 75 to the square mile, and an aggregate arises of 1,822,000.

Take, now, the 52 remaining Counties, composing *Western* Virginia, and they present an aggregate population in 1840 of 432,855. The progressive population of these Counties could not be given, because in the period from the first census down to 1840, such have been the extensive changes of old Counties and the creation of new ones, as to preclude any analysis.

West Virginia comprises an area of 28,000 square miles, which, divided by 52 counties, gives to each a surface, within a very small fraction of 500 square miles, and her distributive population is 15 to the mile.

SUMMARY OF ALL VIRGINIA,
DIVIDED ONLY INTO EAST AND WEST ACCORDING TO THE CENSUS OF 1840.

Sections.	*Whites.*	*Colored.*	*Area in sq. m.*	*Pop. in sq. m.*
East and Mid. Va.	369,398	437,544	33,175	30
West Va.	371,570	61,285	28,000	15
Total,	749,968	498,829	61,175	*av.* 20
Total population.	1,239,797			

The very unequal distribution of the colored race, on the two great sections of Virginia, must strike every one whose attention is turned to the subject. The very thin general population is, again, a far more serious matter. We have already shown, over the State, that every individual counts against thirty acres of land, very nearly. To cure any evil it is necessary to look it fearlessly in the face. As Burns says,

"O wad some Power the giftie gie us,
To see oursels as ithers see us."

The subjoined tabular view ought to carry its lesson in solemn admonition to more States than Virginia:

The States which border on Virginia are—

	Area in sq. m.	*Pop. in 1840.*	*Pop. to sq. m. in 1840.*	*Acres to inds.*
Maryland,	10,800	469 232	42	14
Penn'a,	43,950	1,724,033	40	16
Ohio,	39,000	1,519,467	38	15¾
Kentucky,	39,000	779,828	20	31
Tennessee,	44,000	829,210	19	33¼
N. Carolina,	43,800	753,419	17	37
Totals,	220,550	6,075,189	*av.*...24	23

But remember how lately Ohio was under Territorial Government. In 1800 her whole population was but 35,365, while that of Virginia was 880,200. In 1840 the population of Virginia had risen to 1,239,797, when Ohio had gone up to 1,519,467. What must have been, during that time, the appreciation in the value of her lands! Maryland, nearly resembling Virginia in her laws, policy, institutions, and the nature of her natural advantages and resources, has in *fifty years* increased but 160,000,

and that almost exclusively in Baltimore, and that portion of the State resembling West Virginia, where her accumulations have also occurred. Her tide water country, taking 8 or 9 counties on the Eastern Shore, has actually retrograded in the last thirty years.

The elements here presented carry their evidence and conclusions so clearly with them, that comment is unnecessary. If we add the extent and population of Virginia to the foregoing, we have a connected area so near that we may assume it at 282,000 square miles, on which, in 1840, there was found an aggregate population of 7,314,986—or only 25 to the square mile. The land surface of the earth would be examined in vain to find another superior region, in all that nature presents for cultivation and use, to the human head and hand. We may at once assert that three-fold of the existing population of the whole United States might be placed on the space before us, and, under wise policy, enjoy more physical, moral, and intellectual advantages, than it is possible to realize over a surface so vast in proportion to either the present, or, we fear, future population within any short period.

In this great space Virginia comprises the central position, and in many respects the greatest concentration of natural advantages, and without any exception presents the most propitious natural field for immigrants that exists on the face of the earth. What is it, then, that keeps them at a distance, and drains your own people away from the graves of their parents and their own birth-places? The extreme cheapness of rich Government lands, generously surrendered by yourselves, (and a small portion of the proceeds of which you now so magnanimously reject,) and the facilities for rapid and cheap transportation to those lands, by works constructed by the enterprize and unaided resources of the people of New-York, act as resistless drains of immigrants to the West. But, except that her harbor is somewhat nearer and more accessible, what advantages has New-York enjoyed over Virginia, as to inherent resources, and in her relations to the West and South-West? and how has she contrived so to outstrip Virginia in public works, in education, in growth, and in power over the destinies of the Republic? Has she, let us repeat, more, or deeper, or farther reaching bays or rivers? or richer mines of coal and iron? or lime or marl? or more copious springs of salt water? or higher falls or greater volumes of water power? If New-York has the Hudson, with its head-spring near the Lakes, have not you the James river, extending yet nearer to the Kenawha, with its bosom *always open* to receive the products of your industry, while the Hudson is hermetrically sealed for months? Look along your eastern boundary, [illegible] the margin of the Chesapeake, trace up [illegible] ources all the noble rivers that rise in the heart of your agricultural population, like so many natural canals sweeping along thousands of miles of fertile shores, and compare all these with the comparatively narrow and iron bound shores of the Hudson! Where, then, let us repeat, is to be found the reason that you, the most favored portion of this continent except, perhaps, Maryland, stand still in mid growth, like a lightning blasted tree of the forest, while Northern States are going ahead in all that constitutes wealth and power, with a rapidity unparalleled in the annals of human population. Is it that these people *act* while you *talk*? At the instant that we are writing, a man, employed for nothing else but to distribute them, throws on the table within our reach, the following printed paper. Read it, we pray you—even *it* will serve to throw some light on the sort of people, and the progress with which you have to contend.

NOTICE TO EMIGRANTS.—The subscribers having been appointed Agents for forwarding Emigrants by Railroad from Albany to Buffalo and intermediate places, are enabled to send them, during the Summer, from New-York to Utica for $2,06; to Syracuse, $2,92; to Auburn, $3,36; to Rochester, $4,61; to Buffalo, $5,50. Children from 2 to 12 years old half price; under two years free; and all Baggage from Albany on the Railroad is entirely free.

It is evident that it comes much cheaper to the Emigrant to travel by railroad than by canal, he reaching Buffalo per steamboat from New-York, and railroad from Albany in 42 hours; whereas, it takes per canal from 9 to 10 days. The following calculation shows the result, viz:

Passage to Buffalo per Railroad	$5 50
Luggage from New-York to Albany, 100 lbs. free, balance for 100 lbs	0 18
Luggage from Albany to Buffalo free.	
Living for 42 hours, say	0 75
Total per Railroad	$6 43
Passage to Buffalo per Canal, say	2 00
Luggage to Buffalo, 50 lbs. free, balance for 100 lbs	0 55
Loss of time at least 9 days, worth to the laborer, say 50 cents per day	4 50
Living for 10 days, 50 cents per day	5 00
	$12 05
Deduct fare per Railroad	6 43
The traveler per Railroad saves	$5 62

They also forward passengers to Portsmouth, Cincinnati, and other places in Ohio, Pittsburgh, Louisville and St. Louis, at the lowest rates. All information as to different routes given *gratis*, and tickets to be had only at the Albany and Buffalo Railroad Office, 59 Cortlandt-street. WOLF & RICKERS.

Here, then, you behold, before a ship arrives at the wharf, as they are doing every day, with hundreds of immigrants, she is boarded and every passenger made to know that in forty-two hours he and his 100 pounds of baggage may be set down 450 *miles on his way to the West for* $6,43, including meals! while, suppose him to be at Washington, on his way to the West, it would cost him $2,50 to get along the first 38 miles, or *one-eleventh part* of the distance from New-York to Buffalo! It was not then, too soon, when, in forming your Society, in January

last, you called your Convention of "the first Statesmen of Virginia, the most distinguished Farmers of the State," together, as forcibly stated by Mr. Minor, "to engender a general and universal spirit of improvement, and to bring its influence to bear not only on the peculiar interests of the Farmers, but on all the great and vital interests of the Commonwealth." May the result be, in the words of the strong Address elicited on that occasion, "the correction of defective systems of husbandry, the introduction of improved breeds of cattle and of the best and cheapest implements of Agriculture, and the general diffusion of *valuable, interesting* and *profitable information*, where ignorance, indifference or obstinacy now retard the progress of improvement."

On looking back at what we have written, we find it will be necessary to postpone to the next number the reflections suggested by a view of the case as already set forth; and if we were sure that the able men who have taken it in hand would not *look back*, we would not dare suggest remedies in the presence of physicians so much more eminent and skillful. As it is, we shall continue in the next number of *The Farmers' Library* an exposition of such views as have occurred to us, but we shall do it with a stronger feeling of justification, and hope of escaping all charge of presumption, by throwing what we have to say in the form of a letter in reply to one just received from Mr. AFFLECK, an agriculturist of the first order of intelligence and public spirit, in Mississippi, who gives us the glad tidings that there, too, "*the first important step has been taken.*" In the meantime, we will only premise further, that we apprehend the remedies proposed do not go to the root of the disease—that they will prove palliatives rather than cures. It is not, as it seems to us, improved breeds of animals, or improved implements, that Virginia needs. The existence and the whereabouts of both of these are known, and he who has means can have no difficulty in procuring them. The disease lies much deeper. But we have already appropriated more space than we could have done with propriety, were it not, as before intimated, that whatever observations apply to the industrial resources of Virginia, are in a great measure applicable to all the grain growing States South and West of the Delaware.

Thus far had we written with a running pen, when the post-boy lays on our table a letter, from which we at once make an extract, illustrative of all we have said about the advantages which Virginia offers to immigrants. These lands are in a county already settled and eminently healthy, with every social comfort within reach and the means of independent living so abundant on the spot, as scarcely to leave an excuse to any reasonable man for any outlay except for tea and coffee. Sugar, it is presumed, may be extracted from the maple on the spot; and from personal observation many years ago, we can pronounce it no exaggeration to call it a land literally flowing in *milk and honey*. The letter is from a gentleman at Fredericksburg, of the highest respectability:

"FREDERICKSBURG, (Va.) June 18, 1845.

"*Dear Sir:* I own a very considerable quantity of land in the Western counties of Virginia, much selected with an eye to advantages that I thought the systems of internal improvements (slowly in progress in Virginia) would make desirable, as well for its locality as for its capacity to produce grain and grass. I have several small tracts united, making about 9,000 to 10,000 acres in the county of Fayette, about half way between Charleston, the county seat of Kanawha county, and Lewisburg, the county seat of Greenbrier county. The great improvement connecting the Ohio river and Richmond, Va., passes through this land by a turnpike. But another mode of improvement is contemplated, but whether it will be effected time will prove. I have about 10,000 acres in the county of Lewis, Va., through which the turnpike from Staunton to Parkersburg, on the Ohio, passes. These lands are very fertile and heavily timbered with oaks, poplar, beech, sugar-tree, elm and hickory.

"I should be glad to procure substantial occupants on these lands, and would give a *long credit*, with one-fourth part of the purchase money paid in hand—and for the residue, say from one to ten years time. This land will be in price, from *from one dollar and fifty cents to four dollars per acre.*

"I have other good lands, perhaps richer than the foregoing, in small detached tracts, from 150 to 1000 acres—rolling, rich land, finely watered and remarkably healthy."

The extract is made merely to show one of the thousand opportunities that exist for eligible settlement in the Old Dominion. But besides natural advantages, much depends, in such cases, on the *policy of the States that offer them!*

But below we give another letter, just at hand:

ON THE COMMON SCHOOL SYSTEM OF NEW-YORK.

WE lose no time in giving the following very obliging letter, from the enlightened and efficient Deputy Superintendent of the Common Schools of New-York. We entirely concur in his views as to the expediency and practicability of making these schools the blessed instruments of raising Agriculture to its just predominance in the list of intellectual pursuits. Nor do we at all despair of seeing such counsels as his ultimately pervading the whole region of country South of the Delaware, to which these remarks are more particularly directed.

Until opportunity offers for a fuller *resumé* of the valuable documents accompanying Mr. Randall's letter, we can only take room now to state,

in order to show the progress the system is making, that in 1815, the number of children in the State between the ages of *five* and *sixteen* years, residing in the School Districts, was 176,449, and the number then taught in said Districts was 140,106; while in 1843 the number in the Districts between those ages was 677,995, and the number *taught* was 657,782.—The aggregate amount of the funds applicable to the support of Common Schools and *District Libraries*, for the year ending 31st of December last, (*including reveuue from U. S. Deposite fund!*) was—

Apportioned from the State.....	$275,000 00
Equal amount raised by Supervisors....	275,000 00
Sums voluntarily raised by vote of towns	18,000 00
Sums raised in cities under special laws.	200,000 00
Local funds.....	18,000 00
Total.....	$786,000 00

The great beauty of this exposition is, that all this is done by these Northern men cheerfully and punctually, under an organization embracing, in the words of Mr. Randall, "the entire territory of the State, and cemented together by the active and constant coöperation of our fellow-citizens generally, without distinction of party or sect."

SECRETARY'S OFFICE,
DEPARTMENT OF COMMON SCHOOLS,
Albany, June 23, 1845.

MR. J. S. SKINNER:

Dear Sir: I have the honor to transmit herewith, for your acceptance, a copy of the last Annual Report from this Department, together with a concise exposition and history of our Common School system, prepared by myself, and placed, under the directions of the Legislature, in each of our School District Libraries. An examination of these documents will enable you to obtain a good general idea of the prominent features of our system of public instruction, its capabilities and results.

It has occurred to me that an organization so extensive and efficient—embracing the entire territory of our State, and cemented together by the active and constant coöperation of our fellow-citizens generally, without distinction of party or sect—might afford a most valuable medium for the collection and diffusion of Agricultural Science. Emanating from the Principals and Professors of our State Normal School, this indispensable branch of modern education might, as it seems to me, find its way through the teachers there annually educated and sent forth, to the several County Associations of teachers, and by them be carried into each of the eleven thousand School Districts of our State, to fertilize, in good time, as well the soil as the mind. My views upon this subject have been given, somewhat at length, in two communications addressed to a Committee of the State Agricultural Society, of which Hon. John Greig was Chairman, in reply to a Circular received from the late Recording Secretary; and will be found in the volume of the Transactions of the Society for the present year, recently published. They have elicited considerable opposition from practical farmers as well as practical educationists, upon the ground not only that our elementary schools are not sufficiently advanced to admit of the introduction of Agricultural Science as a specific branch of study, but that Agricultural Science itself is still in its infancy, and therefore not entitled as yet to take rank with those standard branches which are required to be taught in our institutions of learning. These objections, it will readily be perceived, even if their validity be conceded to the fullest extent that can be claimed for them, are of a temporary character; and in propositions and discussions of this nature, I think we should regard the future even more than the present. Through the agencies now developing themselves in every section of the State, we may reasonably, in my judgment, indulge the hope that a few years will place our Common Schools on very high ground as nurseries of the mind and the heart; and will enable them to dispense broad-cast over our entire population, the seeds of sound knowledge and lasting improvement; nor, judging of the probable future from the past, need we labor under any apprehensions that the progress of Agricultural Science, in all its departments, will keep pace with the advancement of the age in other respects. With every disposition, therefore, to concede to the greater practical knowledge and more enlarged experience of those who view this subject differently, I cannot regard the suggestion that this important branch of a finished education should be introduced into our Common Schools as either visionary or impracticable. My own earnest conviction is that it should be so introduced: that every teacher should be capable of teaching its elementary principles; that text-books on the various subjects connected with these principles, adapted to the comprehension of the learner, should be prepared and used; and that well-written treatises and essays on these subjects should find a prominent place in every District Library. In this way, I am satisfied, great and lasting good may be accomplished: and I would respectfully invoke your earnest and efficient coöperation in the extension and enforcement of these views, should they be so fortunate as to meet with your approbation. Should a favorable opportunity present itself, in the course of your undertaking, it will afford me the utmost pleasure to discuss this whole subject, in a friendly and familiar spirit, with those who view it through a less enthusiastic certainly, and perhaps a more practical, medium than myself.

With great respect, your obedient servant,

SAMUEL S. RANDALL,
Deputy Superintendent Common Schools.

Nothing is more satisfactory than the demand for the means of DRAINING LAND, as evinced by the constant efforts which are making to provide tile-machines which shall manufacture them cheaply and well. We have to direct the attention of our readers to an advertisement in last week's number, which states that a machine capable of delivering 800 feet per hour of tiles 3¼ inches by 3½ is on exhibition at No. 14 South-street, Manchester-square, London, where any one interested in draining land may attend and judge of its efficacy. Messrs. B. Denton and Charnock, who are connected with it, are well known by their useful writings on the subject of drainage. [English paper.

VEGETABLE SILK.

LITH OF D & W. ENDICOTT N. YORK.

New York Published by Greeley & McElrath for the Farmers Library J. S. SKINNER Edt

SILK PLANT FROM TRIPOLI.

For the Silk Plant, which has been lithographed for this number we are indebted to the Secretary of the National Institute, so called—we say so called, for although truly broad and National in spirit and objects, we are not aware that it has yet been adopted, by the wise men who guard the interests and character of the Republic, and who ought to be the first to see that its true welfare and glory can in no way be so well secured as by manifesting in the spirit of their laws a love of justice and a readiness to promote the permanent growth of the arts and sciences.

Even the fund so munificently bestowed by a stranger in a foreign land, in a moment of enthusiastic admiration of our government, to found an Institution at *Washington*, for the diffusion of useful knowledge, if not improvidently squandered, is at least withheld, as if to show to the world that we are wanting either in sense or honesty to appropriate it. How could that be better appropriated than by bestowing it on the National Institute, with a condition requiring the use of it for the promotion and diffusion of the Science of Agriculture, in something like the proportion that that interest bears to all others in the country.

The Meteorological Table which accompanied the drawing and description of the "Silk-Plant," was sent back to Secretary Markoe, so that we cannot institute an exact comparison between the climate of Tripoli and the Southern States, but we doubt not the plant would flourish in the South if conviction of its adaptation to practical purposes should invite its cultivation. But the wish to encourage the Institute, in making the *Farmers' Library* the depository of whatever may be deemed an useful addition to the stock of American Agricultural knowledge or products, is sufficient inducement to give place to any of its communications, in a manner best calculated to evince our sense of duty as a member of the Institute and our individual anxiety to see it achieve its laudable and exalted purposes.

We have a few seed for distribution.

The Plate of the plant, for convenience, has been reduced to very little more than half of its natural size.

U. S. Consulate,
Tripoli, 28th December, 1844.

To Francis Markoe, Jr. Esq.
Cor. Sec. of the National Institute, Washington.

Sir: I herewith transmit to the Institute a small specimen of "vegetable silk," raised from a few seed that I received from Lucca (Italy,) which originally came from Syria.

Without any instruction or knowledge of this plant, I sowed the seeds in pots in the month of March last. In May and June they obtained the heighth of six to eight inches, when I transplanted them into my garden, about eight inches apart, much too near as my experience proves. In the months of August and September they were in flower, and the pods commenced opening in October, the plants being from six to eight feet high, and though we have had the thermometer frequently as low as 42° Fahrenheit, and the apricot and pomegranate trees, with the vine, have all shed their leaves, yet there remain several pods, on the "Silk plant" which are still perfectly green and show no signs of suffering or cold. This, with some other proofs of the plant being hardy, induces me to believe and hope that it might be successfully cultivated in all our cotton growing States, and should it become a staple commodity, no doubt the inventive genius of our countrymen would soon discover the means of spinning it without the aid of the cotton fibre, which I am told they use in Syria to assist the spinning—their knowledge of the art not extending beyond the primitive distaff. The only information that I have acquired of this plant, further than recounted above, is from the mouth of one of the "propaganda" established here, who has seen it growing in Syria, where he tells me it flourishes, and that "the cultivation of a small field gives support to a family;" that in the second and third years it is extremely productive. The plants grow to the height of ten to fifteen feet, and are generally separated from eight to ten feet from each other.

I also forward you by this occasion the small quantity of seed of the plant which the limited number I have raised enables me to spare, with the hope of sending a greater quantity next year should the climate of our Southern States prove favorable to its culture, or should it be even otherwise interesting.

I beg you will distribute these seeds amongst those gentlemen from our "cotton growing States," who will take an interest in making an experiment of the cultivation. Permit me to mention two gentlemen to whom I would be pleased to have presented a small portion: Hon. Richard Donnel, of Newbern, N. C., and Hon. D. Levy, M. C., from Florida.

Fearing to trust to my botanical knowledge in giving a satisfactory description of the plant, I send a preserved specimen of a small branch of the plant, with the pods or cocoon attached, and also a rough sketch on paper of the same, which may serve in the event of the specimen itself not being properly preserved.

I also enclose a summary of Meterological observations, made here, for the year ending July 1, 1844, the details of which, I have regularly forwarded to the Surgeon General of the Army.

Very respectfully, Sir, your most ob't. serv't.
D. SMITH M'CAULEY.

Culture of Silk in South Carolina.

DAVIS'S MILLS, Barnwell District, S. C. May 1, 1845.

Sir: The prospects of Silk in this section of the country are poor indeed. The long warm spell through February and part of March, brought out vegetation rapidly—the Silk Worms hatched out early and were prosperous until the cold weather set in, destroying in many places the peaches and many other fruits, cutting down the corn many blades high, and killing much of it—entirely destroying much of the forward wheat—killing the Mulberry leaves of every description. Of course most of the Silk Worms were lost. I saved a few thousands by cutting the tender twigs, stripping off the bark and giving both the twig and bark for food. The drouth setting in about the fourth week in March, continued until last week, when we had a light shower. So vegetation has been kept back very much. This week we have fine refreshing showers, and all around seems to smile in beauty. The few cocoons made seem firm and of good quality. Very little disease has been among the Worms this season here. I think on average five to the thousand have not taken disease. I expect at some future time to state my method of raising them. I intend sending to the Institute what may remain after saving a supply of eggs, principally to convince the citizens that it is in their power to raise them to advantage, by aid of the old and young members of the family, who now raise hardly any thing. When once they see that something can be obtained for their labor, hundreds, I think, in this section of country, will readily come into raising Silk, to their own comfort, and the general benenfit of their country.

Very respectfully, your ob't. serv't.
(Signed) NEEDHAM DAVIS.

Directed to the American Institute.

WOOLEN MANUFACTURES AND WOOL.—Returns upon this subject were issued on Saturday, by order of the House of Commons (on motions of Mr. Masterman and Mr. Aldam). It thence appears that the declared value of the British woolen manufactures exported from the United Kingdom in 1844 was £68,204,836, of which £2,444,789 worth was exported to the United States of America. During the same year 65,079,524 lbs. of sheep and lambs' wool, foreign and colonial, were imported into the United Kingdon, of which 1,924,826 lbs. were re-exported from the United Kingdom, chiefly to Belgium. Of British sheep and lambs' wool, 8,947,619 lbs. were exported to foreign countries; and 8,271,906 lbs. of British woolen and worsted yarn, including yarn of wool or worsted mixed with other materials. There were also imported into the United Kingdom 635,357 lbs. (of which 47,848 lbs. were re-exported) of alpaca and llama wool; and 1,290,771 lbs. of mohair, or goats' wool, of which 97,529 lbs. were re-exported. English paper.

AN EXTRAORDINARY PROLIFIC PIG.—Our respected townsman, Mr. Charles Minshull, of Highgate, has a sow which has produced him 61 pigs in one year, viz: on the 13th of May, 1844, 21; 5th of November, 18; 1st of May, 1845, 22;—total, 61. Of this valuable breed Mr. Minshull has brawn of the November *litter*.

[Birmingham Advertiser.

WONDERFUL ENGINE.—It is alleged that a wonderful engine, called the air-engine, has lately been constructed by Professor Reingle, who is securing patents in every civilized country of the earth. The power, which is self-produced in the engine, is obtained from condensed air, which, though easily manageable, begets an immense force, the present engine, which stands on a space not exceeding two feet square, having a power equal to five hundred and sixty-eight horses. For pumping water out of mines it is gravely proposed to use a 10,000 or 20,000 horse-power in order to do the work promptly. It is stated that, with the present small engine, two hundred and twenty tons can be propelled at the rate of twenty-five to thirty miles per hour. The description of the action of the machine is very vague, but it is said that several very eminent and scientific men have examined it and expressed their astonishment. Professor Faraday, having seen the drawing and heard the theory and practice of this invention explained, complimented the inventor by declaring, that he had discovered perpetual motion of the most terrific description.

NUTRITIOUS FOOD.—A very interesting report on the comparative nutritive properties of food was lately presented to the French Minister of the Interior by Messrs. Percy and Vanquelin, two members of the Institute. The result of their experiments is as follows: In bread, every hundred pounds' weight are found to contain 80 lbs. of nutritious matter; butcher meat, averaging the various sorts, contains only 31 lbs. in 100 lbs.; French beans, 25 lbs.; peas, 23 lbs.; lentiles, 94 lbs.; greens and turnips, which are the most aqueous of all vegetables used for domestic purposes, furnish only 8 lbs. of solid nutritious substance in 100 lbs.; carrots 14 lbs.; and what is very remarkable, as being in opposition to the acknowledged theory, 100 lbs. of potatoes only yield 35 lbs. of substance valuable as nutritious. According to this estimate, 1 lb. of good bread is equal to 2½ or 3 lbs. of best potatoes; and 75 lbs. of bread, and 30 lbs. of butcher meat are equal to 300 lbs. of potatoes. Or, again, 1 lb. of rice or of broad beans is equal to 3 lbs of potatoes; while 1 lb. of potatoes is equal to 4 lbs. of cabbage, and to 3 lbs. of turnips. This calculation is considered perfectly correct, and may be useful to families where the best mode of supporting nature should be adopted at the least expense.

[Chambers's Edinburgh Journal.

NEW GRAPE,—We have tasted a bottle of delicious Champagne Wine made from a vine which Mr. Lester, U. S. Consul at Genoa has just brought with him from Italy. A quantity of these vines was sold, by Wm. H. Franklin & Son, 15 Broad street, on 1st of July. We are informed that these vines were taken from Savoy and Piedmont, *from under the snow*, and consequently will endure the cold winters of our climate, and we believe they are the first Italian vines ever introduced into the U. States, which could be cultivated in the open field. The wine is the richest and most delicious Champagne we have ever drank. We are informed by American gentlemen who have eaten the grape at Mr. Lester's house at Genoa that they found none so delicious in any other part of Europe. We understand there are several varieties.

[Evening Mirror.

A NEW VEGETABLE AND NEW GRASSES:

RECOMMENDED TO BE IMPORTED.

It is the crowning glory of Commerce that her office is to maintain throughout the world an equilibrium of knowledge, to transfer whatever is peculiar and valuable in one climate or country, to be cultivated and enjoyed in every other, where Nature can be persuaded by Art to entertain and support it; or where this may not be done profitably, then it is her province to interchange whatever might bear transportation, but refuses to be acclimated. Thus has Commerce been justly denominated the handmaid of civilization—and who so barbarous as not to do her homage in that beautiful character?

Viewed in this light, it is easy to see how the Merchant may become the benefactor of the Farmer when appealed to in his behalf, to introduce from abroad new vegetables, plants, animals, machines and materials for the promotion of American Husbandry. Now, for example, if our brief residence did not forbid it, we would call upon some generous New-York Merchant-Farmer or friend of Farmers, of whom doubtless there are many, to import a new *Grass*, much spoken of in late English papers, that no time might be lost in securing the benefit of it, if adapted to our climate. And here it is worthy of remark, that while in manufacturing and other arts the delay of a few weeks in the importation of any new contrivance or discovery involves the loss of only that much time, it is far different with Agriculture and Horticulture. The delay of a week or two may involve the loss of a season, and with it the entire year. We have ourselves had occasion to feel the force of this, in the commencing number of the Farmers' Library; for while we have on hand a mass of matter which seems calculated to throw much light on the preparation of the land and other points connected with the culture of *Turnips* and *Potatoes*, two most important products of Agriculture, we have entered upon our duties just a few weeks too late to present any thing now available on *these subjects*. We must therefore reserve for a more appropriate opportunity much of what we hope may prove useful if not new on these points. But as to the Grass that has lately been mentioned with strong commendation and interest, in the English journals, and which we hope to see imported by some gentlemen having facilities to do it.

We find the following notice in the January number of "The Journal of Agriculture and Transactions of the Highland Agricultural Society of Scotland." Who knows but that before many years we may see all the marshes along the sea-beach, from Marshfield to the sea-shores of North Carolina, green with luxuriant crops of the Tussac and Tescue Grasses?

TUSSAC GRASS OF THE FALKLAND ISLANDS.

BY REV. JAMES DUNCAN, M. W S.

So much has of late been said respecting this grass, and such high expectations have been formed of it proving a valuable acquisition if introduced and propagated in this country, that a brief description of its appearance and properties can scarcely fail, we think, to be acceptable to the readers of this journal. Although not brought prominently into notice till the recent voyage of discovery in the antarctic regions, under the superintendence of Captain Ross, it has been long known to botanists, and is alluded to by most of the navigators who have touched at the islands which form its principal locality since the days of Cook. Its botanical characters, however, do not seem to have been closely examined, nor rightly understood, until investigated by Sir W. J. Hooker, who has given an account of it, accompanied with a colored representation, in a pamphlet entitled "Notes on the Botany of the Antarctic Voyage." Neither does it seem to have occurred to those who first noticed this grass that it was calculated to flourish on the shores of northern Europe, the circumstance which now claims for it such a degree of attention.

It is called the Tussac grass from its habit of growth, the roots becoming densely matted together, and the lower parts of the stalks forming a large tuft or *tussac*. These basal or columnar portions, formed by the close approximation of the stems or culms, often rise to a considerable height—from four to six feet; the long tapering leaves then diverge from them, and hang down all around, often in a very graceful curve, like the falling waters of a *jet d'eau*. These masses are insulated, generally a few feet apart, and the leaves, meeting above, form a kind of arched roof, beneath which the ground is generally quite bare of vegetation. A *tussac ground* thus forms a complete labyrinth, and a man may walk among its green arcades completely concealed from view. Nay, a house may be formed of it in a very short time: the inclined stems, when fastened together, may be made to serve as a roof, while the dry leaves about the root make a tolerably good bed. Bougainville states that he often in this way obtained shelter for himself during his wanderings. This, however, refers to the plant in its most luxuriant state of growth: it is often so low as scarcely to afford adequate shelter to the flocks of penguins which resort to it for the purpose of building their nests and rearing their young.

By the earlier naturalists who examined this

grass, it was thought to be a fescue, and we accordingly have it referred to under the names of *Festuca flabellata* and *Festuca cæspitosa*. Forster notices under the name of *Dactylis cæspitosa*, and that appellation is now retained, as a careful examination of its character leaves no doubt that it belongs to the genus *Dactylis*. It has thus a generic relationship to a well-known grass in this country, the *Dactylis glomerata*, or cock's foot—[or orchard grass]—a strong, coarse grass, insulated tufts of which may be seen growing by the side of every hedgerow and field. The tussac is perennial; the root consists of a dense mass of tortuous fibres. The stems, which spring from the little hillock formed by the roots, are numerous, erect, branched or divided only at the base, from three to four feet long, smooth, and compressed. The leaves are numerous, the lower ones very long, not unfrequently from five to seven feet, about an inch broad at the base, and gradually tapering to a point; from above the middle they are curved downwards, or even pendent; the stem-leaves become gradually shorter upwards, and are of a pale glaucous or sea-green color; the other leaves are pale yellow. The panicle is a span long or upwards, very dense, forming a somewhat interrupted spike, nearly two inches broad, compressed and obtuse; the branches short and erect; the rachis angled. "Spikelet composed of three or four florets, of a pale yellow-green color. The calycine glumes are lanceolate, acuminate, longer than the spike of flowers, slightly keeled, shortly ciliated on the back, three and a-half lines long, the margins a little involute, and, as well as the apex, membranous and transparent, the superior one a little longer than the other, three-nerved, the nerves ciliated. The lower glume or palea of the corolla is ovate, concave, compressed, and sharply keeled; bluntly trifid at the apex, five-nerved. Stamens three. Anthers pale yellow. Ovary nearly ovate and glabrous. Fruit elongate-ovate, or almost cylindrical, slightly trigonous, of a pale yellow color, and smooth."*

It will at once appear, from the length and breadth of the leaves, the dimensions of the culms, and the profusion in which both these are produced, what an immense quantity of herbage this plant is calculated to afford. Both the leaves and stems abound in saccharine matter, and form a most nutritious food. The inner portion of the stem, for a little way above the root, is soft, crisp, well-flavored, somewhat resembling the kernel of a nut, and is often eaten by the inhabitants of the Falkland islands. The young shoots also are boiled and eaten like asparagus. This tends to show the wholesome nature of the whole plant as an esculent; but it is as affording pasturage for cattle that the tussac is to be chiefly valued. The Falkland islands have long been known to be inhabited by many wild cattle and troops of horses, and these are principally supported by this grass, which they prefer to every other kind of food. Not only these, but every herbivorous animal in these regions not only devours the tussac with avidity, but is affirmed to fatten on it in a short time. This predilection is shown for it both in a green state and when dried, insomuch that cows and horses often eat the thatch from the roofs of the houses when it happens, as it often does, to be composed of tussac grass.

"During several long rides," says Lieut. R. C. Moody, "into the country, I have always found the tussac flourishing most vigorously in spots exposed to the sea, and on soil unfit for any other plant, viz. the rankest peat-bog, black or red. It is singular to observe the beaten foot-paths of the wild cattle and horses, marked like a foot-track across fields in England; extending for miles over barren moor-land, and always terminating in some point or peninsula covered with this favorite fodder; amid which one is almost certain to meet with solitary old bulls, or, perhaps, a herd of cattle—very likely a troop of wild horses, just trotting off as they scent the coming stranger from afar. I have not tried how it would be relished if made into hay, but cattle will eat the dry thatch off the roof of a house in Winter; their preference to tussac grass being so great that they scent it a considerable distance, and use every effort to get at it. Some bundles, which had been stacked in the yard at the back of Government House, were quickly detected, and the cattle from the village made, every night, repeated attempts to reach them, which occasioned great trouble to the sentry upon duty." It is the opinion of those who have visited the Falkland islands, that, if proper attention were paid to the propagation of the tussac grass, and if it were prevented from being entirely eaten down in those places where it now abounds, it would, of itself, without aid from the other indigenous vegetation, not only yield abundant pasturage to all the cattle now existing there, but would support as many as there is ever likely to be a demand for in that quarter of the globe.

The islands just mentioned may be said to form the metropolis of this interesting plant, and, as far as yet known, its geographical range is comprehended within the 50° and 60° S. latitude. Forster found it in New-Year's Island, Staten Land. Commerson cites the Straits of Magelhaens as one of its localities; and Dr. Hooker saw it on Hermite Island, Cape Horn. It has also been noticed in considerable quantity in some of the smaller of the Aukland group of islands.

It is generally found growing near the shore, and flourishes best where the saline spray dashes over it. Indeed, exposure to the sea-breeze, and the peculiar influences which emanate from the ocean, are conditions which seem essential to its prosperity. It is then only that it reaches its most stately proportions, and assumes that exuberant and imposing form, which have led one author to speak of it as the "splendid tussac grass, the gold and glory of the Falklands."—As it recedes from the ocean, it becomes dwarfed and sickly, as if out of its kindred and appropriate element, in this respect resembling our own native *Arundo arenaria*, *Triticum junceum*, and certain other gramineous plants. As with these also, and a considerable number of other species, the glaucous color of the tussac grass may he regarded as indicating it to be a littoral plant; for it would seem as if many of the plants growing near the sea caught their hues, as they are known to acquire certain other of their properties, from the element in their vicinity. It is probable that the saline matter the plant derives from the spray and sea-breezes, contributes not a little to render it so palatable to cattle. The ground on which the tussac grass flourishes best is a wet peaty soil, often very bleak and poor, and scarcely capable of sustaining any other kind of herbage.

* Hooker. "Notes on the Botany of the Antarctic Voyage," p. 50.

It seems to be the almost unanimous opinion of those who have examined this plant in its native localities, that it would succeed in certain situations in our own country. A writer in the "Guernsey Star" newspaper, who appears familiar with the subject, expresses his hope that the "splendid tussac grass will yet make the fortune of Orkney and the owners of Irish peat-boga." The Governor of the Falkland Islands, Lieutenant R. C. Moody, is of opinion that "the wild West Coast of Ireland would exactly suit this grass." Mr. Lyall, of the discovery ship "*Terror*,"—than whom no one has more zealously investigated the botany of these regions—in a communication to the writer of this notice, says: "I should think that sheltered spots, near the beach, on some of the smaller of our Western islands, are the situations in which the tussac grass is most likely to succeed." Sir W. J. Hooker says: "The nature of the soil and climate producing this grass gives every reason to believe that the shores of a vast extent of England, Scotland and Ireland would suit it equally well; more especially the Western coasts of the two latter countries."

In these circumstances, public curiosity could scarcely fail to be excited, and some degree of interest to be attached to the attempts made to introduce the grass into Britain. No living plants ever reached this country. Dr. Hooker did, indeed, dispatch some young plants in cases, but they perished during the voyage. The seeds have been found to germinate freely in the Governor's garden in the Falkland Islands, and it was thought there was every probability that they would likewise do so when transported to this country. The first attempt to rear the plant from seed in Britain was made by Sir W. J. Hooker, in Kew Gardens, but he entirely failed. Last Winter, a package of seed, carefully collected and preserved by himself, was presented to the writer of this notice by Mr. Lyall, of the "*Terror*." It was duly sown last April in a garden in the village of Denholm, Roxburghshire, and carefully attended to; but although the seeds seemed healthy, and in good condition, not one germinated. Seeds collected at the same time, and by the same individual, were sown in Kew Gardens, but the result was the same. The Highland and Agricultural Society of Scotland lately purchased two lbs. of seed, which had been sent to the Colonial Office. It has been intrusted to the care of Mr. Lawson, the society's seedsman, and, if it fail to grow, it will be from no want of attention or skillful treatment. It was lately stated in the newspapers that Dr. Murray, of Hull, had succeeded in raising several plants from seed given to him by Sir W. J. Hooker, and his success was ascribed to his having steeped the seed in some chemical solution previous to sowing it.

It is not easy to see any reason why the Tussac Grass should not succeed, at least to a certain extent, in this country. The climate, soil, and most other conditions, are not so different from those it meets with in its native regions as to be likely to form insuperable obstacles. It should be remembered, also, that the grasses in general have a very wide geographical range; some of them, in fact, such as the *Poa annua*, perhaps approach nearer to true cosmopolites than any other distinctly flowering plants. The high utility of this tribe of plants in affording food to animals, might lead us beforehand to imagine that they would be widely distributed, readily propagated, and possess the power of accommodating themselves with facility to a change of circumstances. This we accordingly find to be the case in a singular degree, and it affords a fair presumption of success in any attempt to bring a grass from one country for the purpose of being cultivated in another. In the present instance, one of the circumstances which indicates most strikingly that the influences under which the Tussac flourishes in a Southern latitude are not remarkably different from those to which it would be subjected in a Northern one, is the fact that, on the very same grounds where it prospers is to be found a variety of plants which also grow naturally in Britain.—Among these are the common grasses, *Lolium perenne*, *Aira flexuosa*, and a species of *Triticum*, probably *T. junceum*. If these grasses thrive in the Falkland Islands under the same conditions as the Tussac, it may be fairly inferred that the latter would not refuse to grow in Britain, where they find all that is necessary for their prosperity. Among the other British plants growing in the Falkland Islands may be mentioned *Apium graveolens*, *Cerastium vulgatum*, *Alsine media*, *Senecio vulgaris*, *Veronica serpyllifolia*, and *Rumex acetosella*. In fact, the general aspect of the vegetation is essentially European, and in not a few respects resembles that of Great Britain. We shall probably, however, be disappointed if we expect the Tussac to reach its utmost state of luxuriance in this country, and to form those huge and almost arborescent masses of herbage, an assemblage of which resembles a thick-set copsewood, or a miniature forest; but even in a dwarfed and imperfect condition, it could not fail to be an important addition to our native grasses, and would still greatly exceed the dimensions even of the most stately of them.

When cultivated in the Falkland Islands, it is recommended either that the seed should be sown in patches, just below the surface of the earth, and at distances of about two feet apart, or that it should be drilled in rows, like turnips. Treated in the latter way, it was found to spring up strongly from the seed. It must, however, be taken into consideration, as remarked by Sir W. J. Hooker, that, in order that it may thrive in this country, the plant must so far change its habits of the Southern hemisphere as to forget that our Winter is its Summer, and *vice versa*.

The merits of the above grass have probably been the cause of another similar production of the Falkland Islands having been in a great measure overlooked, although its qualities seem to be such as to entitle it to attention. This is a kind of fescue grass, the *Festuca alopecurus* of D'Urville, and the *Arundo alopecurus* of Gaudichaud. In a report transmitted to Lord Stanley, it is spoken of in the following terms:

"Another, grass, however, and of more extensive distribution than the Tussac, scarcely yields to it in nutritious qualities. It covers every peat-bog with a dense and rich clothing of green in Summer, and a pale-yellow good hay during the Winter season. This, hay, though formed by nature without the operation of mowing and drying, keeps those cattle which have not access to the Tussac in excellent condition, as was proved by the beef with which our hunting parties supplied, for four months, the discovery ships. No bog, however rank, seems too bad for this plant to luxriate upon, and, as was observed during a surveying excursion which had been made to Port William, although

the soil on the quartz districts was very unprolific in many good grasses which flourish on the slate-clay, and was, generally speaking, of the worst description, still this fescue-grass did not appear to be affected by the difference, nor did the cattle fail to eat down large tracts of such pasturage.

"The numerous troops of horses, too, on the flanks of the Wickham heights, can procure little other fodder; while those of Mount Lowe and Mount Vernet must depend upon it entirely. Should the Tussac disappear from any part of the Falklands, where stall-fed cattle are kept, it might be desirable to treat this fescue-grass as hay in England; by which process its nutritious qualities would, doubtless, be much better secured to the animals during winter than by suffering the leaves gradually to wither, and not gathering them till nature has evaporated all the juices. For sheep it might also answer well, when converted into hay, though it seems likely that the wet nature of this grass, together with the damp situation where it grows, would prevent these creatures thriving upon it, if restricted to such diet; and, at all events, newly imported flocks should not be suddenly removed from dry food to what is of so very succulent a nature."

KOHL RABI—IMPORTANT TO FARMERS.

Sir: Everything which in the slightest degree tends to the improvement of Agriculture is, in the present day, of so much importance that I need not apologize to you for troubling you with a few lines on a subject so interesting to the cultivators of the soil. The deficiency of the Turnip and Swede crop, in consequence of the extraordinary drouth of the last Summer, and the innumerable destructive insects, fly, grub, &c., produced by the dry and warm weather, has been a lamentable blow to the farmers of this country, and should lead agriculturists to endeavor either to eradicate those enemies to their hopes, or to introduce a root equally valuable with the turnip while it is less obnoxious to the attacks of those vermin. The Kohl Rabi appears likely to supply this desideratum; and I wish, by giving you an account of my experience of it, to induce the farmers of this country to try it on a larger scale. If we can obtain a root (if I may use the Irishism of calling that a root which grows above ground) producing an amount of food—1st, equal in bulk to the largest crop of Swedish turnips; 2d, of equal or more nutritive qualities; 3d, not obnoxious to the attacks of grub or fly; 4th, better adapted for keeping through the Winter; 5th, capable of being planted at any season of the year; 6th, enduring the frost of our Winter—we shall have obtained one of the most useful and valuable plants which the Giver of all good has bestowed upon men. I may be considered too sanguine if I attribute all these qualities to the Kohl Rabi, but I feel convinced that it deserves the greatest part if not all the praise which I ascribe to it. I obtained a small quantity of seed in Germany last year, and in the month of March I sowed (thickly) a patch in a sunny bed in my kitchen garden; the plants soon came up as thickly as possible, much resembling young broccoli plants. The dry weather set in, and I despaired of being able to plant them out in the ground which I had prepared for them. After waiting several weeks, and fearing that the plants had become almost too old to transplant, I ventured to do so, lest the season should go by. I made a good, strong compost with cow-dung and water from a muddy pond, and another sort of diluted pigs' urine, and in planting each plant (about eighteen inches apart) I made a good puddle about the roots; in less than a week the plants held up their heads and began to grow vigorously. In October I gathered in my crop, and the result is as follows:—On a plot of ground, as nearly as I can reckon, containing 18 perches or lug, I had 27 kipe baskets full, weighing on the average 80 lbs. each, or, deducting 5 lbs. for the basket, 75 lbs. each; thus I had 2,025 lbs. on this small piece of ground, besides four or five hundred weight of mangel-wurzel and self-set potatoes. This, however, was the produce of the driest season in the memory of man. I have no doubt that more than double the amount might be expected in any other season. Several of the bulbs weighed six or seven pounds. I purpose sending a few as specimens to the Gloucestershire Agricultural Show. I sowed some more seed on chance, without any manure, in a soil rather impoverished, in the month of June, having waited in vain for rain. The plants came up but did not thrive. During the last month, after I had dug a field of potatoes in a good soil, I transferred these sickly plants to the late potato patch, where they have taken root, and are growing surprisingly; I purpose letting them stand the Winter, and have little doubt that they will endure the frost and snow.

Any agriculturist who would like to see them growing, and will apply to my bailiff, at Hempsted, is perfectly welcome to inspect the growing crop. The bulb partakes of a mixed character, something between the inside of a cabbage stock and a Swedish turnip. When young they are an excellent and delicious table vegetable.

I am, Sir, yours obediently
SAMUEL LYSONS.

Hempsted Court, near Gloucester, Nov. 11.

N. B.—The seed should always be sown in a bed, and transplanted; it grows more rapidly, and would secure it from the attack of the fly, if it were inclined to attack it, which I believe it never is. [Gloucestershire Chronicle.

KOHL RABI, OR EGYPTIAN KALE.

To the Editor of the Farmers' Gazette:

Sir: In your paper of March 29th, there is a letter from Mr. Samuel Lysons, on the cultivation of the Kohl Rabi for cattle; and as Mr. L. mentions having obtained a small quantity of seed in Germany, it may not be generally known that it can be obtained from any respectable nursery man in this country. I have grown it annually (with the exception of two or three years) for the last eighteen years, as a culinary vegetable, and have found it very convenient and useful when other more tender vegetables were scarce, especially from October to May, during which time it can be had good. The tops are used, when young and tender, for greens; but these should be gathered very sparingly, otherwise it will retard the growth of the bulb, which sometimes, on strong, rich soils, will weigh a stone each; but when they come to anything like that size they are not fit for the table, as they get hard and woody; therefore, to have them tender and fit for the table for seven or eight months of the year, it is necessary to make two or three sowings from the first of March to the end of May, in a small seed bed, for which one ounce of seed will be sufficient;

and when the young plants have produced a few rough leaves, they should be pricked into a nursery-bed, six inches a part, and in four or five weeks they will be fine, strong plants to plant out finally in lines, two feet apart, and 14 or 15 inches in the line, as they, as well as almost every other sort of vegetable, are better flavored when allowed plenty of room for sun and air about them.

Those who may wish to cultivate Kohl Rabi on a large scale for cattle, must make their seed-bed accordingly; and, perhaps the last week in March, or beginning of April, would be the best time for sowing the seed; and as those would have but little chance of being pricked out into a nursery-bed, if the weather was favorable at the time of planting, they would do very well without it. Indeed, I have no doubt but they would do equally as well to sow at once in the drills, the same way as turnips, about the beginning of May. This would save a deal of labor, and not be so dependent on the weather; and as the seed is rather dear, it would be a more economical plan to dibble in the seed, at a foot apart, dropping two or three seeds into each hole along the top of the drills; and when the plants were of proper size to thin them out to one in each hole, and otherwise hoe and clean the ground, the same as for turnip crops; and when the bulbs get about the size of a person's hand, if a little earth is drawn to the stem it will do them good, but not to raise the earth so high as to cover any part of the bulb; and as they will stand very severe frosts without injury, I did not find it necessary to store them up in the Autumn. I think, Mr. Editor, that the cottagers would be greatly benefitted by growing annually more or less, as they had convenience, of Kohl Rabi, as it is a very hardy plant, and can be very readily cultivated; and, by having a small quantity sown in a seed-bed in the beginning of April, it would be ready to plant out in any spare corner, or after a crop of early potatoes. It is also well adapted to plant in any vacancies that may occur in late crops of field potatoes, &c., and with very little trouble it might produce a great deal of food: for, when boiled and sliced with a little melted butter, it makes a very palatable dish; and to those who have a cow or pig it would be particularly useful during Winter. Yours, &c.

JAMES ALEXANDER.

Heath Farm, Athy, April 1.

KOHL RABI.

I observed in the *Gardeners' Chronicle*, of the 8th inst., some account of growing Kohl Rabi in Gloucestershire. I wish to add my testimony of its hardihood and usefulness for field culture. Being very little affected by the insect tribe, of late so destructive to the turnip, its early growth is very rapid; the plants soon get out of the way of its only enemy, the slug. My method of cultivation is to drill 1 lb. per acre of the seed with the mangel-wurzel; so that if the mangel-wurzel fail, which it mostly does to some extent, I have plants enough of the Kohl Rabi in the field to fill all vacancies which occur on the ridge. This transplanting is done by women and children gowing up and down the furrows, and inserting a plant where it is wanted; and as they take up some earth with the root, the plant receives but little check in the operation. My Kohl Rabi has been exposed to the frost all the Winter without receiving injury; and when cut, affords excellent food for ewes and lambs. I do not find they get sticky except the stalk, which, when cut, cattle will eat down to the root with less waste and spoil than either mangel-wurzel or turnip.

J. S. in the Gloucester Telegraph.

P. S.—I have grown both the purple and green varieties; the purple always grows to the largest size.

SULPHATE OF LIME OR GYPSUM.—This substance, which is a compound of sulphuric acid and lime, is found in abundant quantities in a native state, both for the purpose of agriculture and the arts; and it has been recommended for the same purpose as the muriate of lime, viz: the fixing ammonia; but it is infinitely inferior for that purpose, in consequence of its difficult solubility—at the temperature of 60°, one part of gypsum only being soluble in 460 parts of water, to obtain which, however, the gypsum must be finely divided and macerated for a great length of time. Its more obvious use in agriculture is, however, as a direct food to certain plants, either as supplying the sulphate of lime or, by its decomposition, affording the sulphur necessary to the due development of certain plants, such as the Crucifera, &c. The following table, extracted from "Sprengel's Analyses," shows the quantity of lime and magnesia, sulphuric and phosphoric acids, in 100,000 parts in several of our ordinary crops:

	Lime	Magn'a.	Sulph. Acid.	Phos. Acid.
Wheat	96	69	50	406
Barley	106	180	59	210
Oats	86	67	35	70
Potatoes	33	32	54	40
Cabbage	1822	202	774	436
Swedish Turnips	835	282	890	408
Wheat Straw	240	32	37	170
Barley do.	554	76	118	160
Oat do.	152	22	79	12
Red Clover	584	70	94	138
Beet	285	133	123	167
Turnips	127	22	41	72

The above table may not be strictly accurate, but I believe it approximates to the truth, and certainly agrees with my own practical observations respecting the exhausting powers of different crops on various soils. Cabbages are known to be one of the most scourging crops that is grown, and we see from the above table that both it and swedes require a large amount of the sulphate of lime; the next is red clover, and the application of gypsum to the clover crop, on lands sparingly endowed with this substance, has been so repeatedly treated of, that it is an act of supererogation to enlarge on its usefulness.—[Jour. of Highland and Ag. Soc. of Scotland.

RHUBARB OR PIE PLANT.—This is another highly esteemed esculent for early Spring use, and of the easiest possible culture. The plants continue many years in full bearing, and occupy very little room—a small number being sufficient for a family. The seeds may be sown any time in Spring, and will make good strong plants in one year; when they should be transplanted to a rich deep border, or any convenient spot—placing them three or four feet apart. The stocks should not be cut until the plants are at least two years old. [Ohio Cultivator.

AGRICULTURAL MACHINES PATENTED.

By the aid of Mr. Keller, a scientific gentleman, lately of the Patent Office, and now agent for obtaining patents, and one in whom the utmost confidence may be placed, it will be in our power to keep our readers advised of the progress of improvement in Agricultural Machinery, as far as that progress may be indicated by the issuing of Patents for new inventions. It is not designed to cumber our pages with descriptions of every piece of humbuggery, however specious its pretensions, but the intention is, by engravings and descriptive explanations, to give the earliest and most authentic knowledge of whatever may come into existence which gives fair promise of saving labor and of augmenting crops. At present we must be content with presenting the last report to the Commissioner of Patents, made by Doct. Page, then, and we hope now, of the Patent Office. These (Keller and Page) are gentlemen, like many others, in the Departments at Washington, of sound scientific acquirements, who are little known to the public, but who are the real doers of the work, while their nominal and official superiors, too often sciolists and empirics, run away with all the credit. We are promised a summary which shall bring up the account to the middle of July—for the August number of the Farmers' Library.

"The large number of patents granted for applications pertaining to this class may be taken as fair ground for the deduction that the subject is still one of great growing interest, and is at present engrossing a very large share of the inventive talent of our country. In the short space of one year, it could hardly be expected that any important revolution, any signal discovery, or many really useful inventions, should be made in a pursuit claiming, above all others, the right of primogeniture. Advances, nevertheless, are constantly being made in this branch of industry. Every year it is acquiring fresh laurels and a higher reputation for itself. The "sweat of the brow" is not now the mainspring of its operations, the grand key to its success; nor the open field the sole theatre of experiment. The closet, the laboratory of the chemist, are its nurses. The most exalted intellects are becoming farmers, as it were, in the retiracy of their studies. Science, both chemical and physical, have become the palladium of agriculture.

Since the publication of Liebig's valuable work on the Chemistry of Agriculture, we must date a new era in this science. It has, at least, received a fresh impulse from his labors; and its publication in this country, in newspaper form, for the low price of 25 cents, (when the ordinary bookstore price has been $1 50,) will aid greatly in disseminating knowledge, so essential to farming interests. The use of guano as a manure has long been known in remote parts of the world, and this substance has been employed for many years to fertilize the barren soils on the coast of Peru; but it does not seem to have elicited attention, other than as a matter of curiosity, from the most enlightened agricultural portions of the world, until after the appearance of Liebig's work. The announcement that it was only necessary to add a small quantity of guano to a soil which consists of nothing but sand and clay, to procure the richest crop of maize, was sufficient to awaken an interest in the farmer, and excite the cupidity of the merchant. No writer has dwelt so much on the importance of nitrogen as a manure, as Liebig; and it is this feature in part, which constitutes the grand novelty and value of his work. In the above-quoted assertion, where Guano is added to clay and sand, we suppose not a trace of organic matter in the soil; and yet, by the addition of a manure, consisting chiefly of urate, phosphate, carbonate, and oxalate of ammonia salts, all containing nitrogen, we have the richest crops of maize. The husbanding substances containing nitrogen, and attention to the proper methods for its fixation, will soon become objects of paramount importance with the farmer.

Plows.—Several important improvements have been made in this instrument during the past year; but they are chiefly for modes of fastening and so fitting the points and shares, that, in case of wear or injury, they can be easily replaced by the farmer himself. It is a question, perhaps, yet to be decided, whether cast iron plows are more economical to the farmer than the plows with cast iron mould boards and wrought shares and points. In the latter, the mould board is liable to be broken, and, if so, can hardly be replaced; but, as the share and point are the parts most liable to injury, if these are wrought iron, and fastened in a simple and firm manner, the farmer who is in the neighborhood of an ordinary blacksmith, or may have one upon his establishment, can easily repair the damage, which, in the case of the cast iron plow, he could not do without sending to the manufacturer or the foundry for a new casting. This objection to the cast iron plow is now, in a great measure, obviated by many dealers, who are in the practice of putting up with each plow, for a slight extra expense, two or more extra points and shares. Few plows have been patented during the past year. Several applications have been made for patents for the substitution of steel for cast or wrought iron in plows, and rejected upon the well-established ground that the mere substitution of one well-known material for another is not the subject of a patent. Several cultivators and combined plows for light soils have been patented; but nothing of definite value can be predicated upon this class of inventions. An ingenious instrument for digging potatoes has been the subject of a patent, and, though it may fail to do all it professes, is certainly an approximation to an invention very much needed. This operation is

one of vast labor; and a cheap labor-saving machine, which, in case of very large crops, should leave one-tenth, or even a larger proportion of the crop in the ground, would be a welcome invention.

A promising improvement has been made in the grain cradle, by making the teeth of hollow metal, filling them up with wood sufficiently far to insure strength. The teeth glide very easily through the grain, and are not liable to the objection of warping and sticking where the grain is wet, as in the case with wooden teeth.

A simple and effective instrument for gathering fruit from trees has been patented, by which the ladder may be generally dispensed with, and the trees and fruit saved from injury.

Some important improvements have been made in smut machines, and in machines for hulling seeds.

The wheat fan, or winnowing machine, has been of late much improved by the use of the spiral fan in the place of the old flutter-wheel fan; and, although the introduction of the spiral fan is not recent, yet it has, during the past year, been introduced under such modifications as to render the instrument very serviceable. In connexion with this instrument also, an interesting and useful feature has been secured by patent, consisting of a mode of so operating the screens or sieves as to give just that motion which is imparted them when they are used in the hand.

Bee-hives.—A growing interest is evident in this branch of agriculture, and a large number of applications have been received. Seven of them have been patented, and a greater number rejected. Most of the alleged improvements have claimed to be remedies against the bee moth, the pest of the apiarian. As bee culture increases, the bee moth seems to become more numerous and troublesome, and should, therefore be vigorously met by vigilance and ingenuity. In this latitude, it requires every attention to save the bees from this their great enemy; and so formidable has it become from numbers, that the same devices which may, perhaps, be found to give protection further North, will not apply here.

Nothing yet seems to be of any value, except placing the hives upon the ground—the hives being made very tight, and the entrance of the bees being as low as possible.

EFFECTS OF ELECTRICITY ON VEGETATION.

We might be charged with indifference to the progress of Scientific Agriculture, were we to send out the first number of the Farmers' Library without adverting to one of the most remarkable novelties that has lately attracted public notice, to wit: The effects of experiments lately made in England to test the effects of Electricity on Vegetation. Hence we had arranged for publication what seemed most impressive and worthy of regard. On reflection, however, we conclude to postpone for another number all notice, except what follows. In the mean time we may observe that the subject seems to be, practically speaking, exactly in that state of uncertainty which demands further and more exact experiments, before it can be had recourse to by practical men with any certainty of useful results; and again, it will probably be found that in our own country, and by a member of our "Agricultural Association," too, the investigation and knowledge of this extraordinary agency, as connected with vegetation, has not been in the real of the fullest and most recent European expositions.

The paper in our collection, from English journals, the most cautious and candid and worthy of regard, (and it is highly so,) is the sketch which one of these journals contains, of a recent Lecture by Rev. E. Sydney, delivered before the Royal Institution of London—(one before which every man who does speak, must be on his guard)—and it happens to be within our knowledge, as it may be in our power to show, that *his* views had been, for the most part, by some weeks anticipated, to the effect we have already intimated. Finally, we may venture to promise by the aid of a friend, to keep our readers acquainted with what may transpire, as far as any useful purpose is to be accomplished, or the novel or lately revived subject of *Electro-Vegetation*. Without his aid, in the midst of such elements, we are free to confess it, we should feel in some danger of being drowned or *blown up*.

For an early and very interesting paper on this subject, the reader is referred to the April number of the American Agriculturist, from the pen of Mr. Norton, a most valuable contributor to that very enlightened journal. In that paper occurs the following passage:

"It was at first expected that manure would be of no further use, but it is now said that its action will be much more powerful with the help of this new ally."

On that passage the following remarks were made by the gentleman (Mr. Seely) member of the Agricultural Association to whom we have already alluded. With these remarks, (sections of a lecture delivered before the Agricultural Association,) which we have been kindly per-

mitted to use, and which may be valued for their practical bearing as for their scientific elucidations, we shall close what we have now to say on Electricity applied to Agriculture.

The letter, says Mr. S., which calls forth these observations concludes:

45. "It was *at first expected that manure would be of no further use*, but it is *now* said that its action will be more powerful with the *help* of this *new ally*."

It was indeed a fallacy to have supposed that *exciting* the frame would *feed* it. No living organization ever created *one atom* of its structure. It does but transform its elements; the vegetable those which nature *or art* have placed within the reach of its roots or leaves. These elements placed there, are as spontaneously sought and procured by it, however minute in the atom they may be, through the roots, or leaves, as would be similar by the animal who sees a hay-stack; and they are *equally indispensable* to both. If previous vegetation has taken up the food of the soil, and the crop has been carried to a market, it should be recollected that that act is the act of man in his political and social relations; that Nature *knows nothing of it and does not provide against it*; what she takes up *she gives back again* to vegetation—because, under her administration it generally perishes on the spot, and in so doing restores the elements of organization back to the soil again, with the accumulations from the atmosphere, and the water and ammonia of the air, by decay, equally fitted *in ten thousand successions*, for as many renewed appropriations to the same uses. If it has been carried off by the cultivator, he should remember that in selling the crop he is called on, as *he values the capital invested in the price of his land, to restore it*, in so far as he stands indebted to the *soil* for it; that all of the price he obtains *beyond* what will *replace* the *fertility* of his soil is *his gain and no more*. To appropriate more is *literally selling* (or lessening the value, which is the same thing,) of his land.

46. When he seeks, through electricity, to force the vegetable, he is merely calling on the functions of the structure to *take up* more of the elements contained in the soil or the atmosphere, and, referably to the products realized, they must be found there either at the hands of nature, *or of his art*. Without *this* his electricity will do him no good; but he may justly anticipate that in vitalizing and energizing the functions of the vegetable frame (as he thus may do with the aid of electricity) through the manuring elements of the soil, he *rateably, but no further*, enables the organization, through *this augmented vitally electric force*, to seize upon, and, through decomposition, accrete the hydrogen of the water—the elements of the soluble ammonia, and carbonic acid of the soil, of the aeriform carbonic acid of the air, and what else of the primitive rock in its disintegrated and soluble state may be there. *Thus* Nature referably will assist the vegetable with elements for his gain; and, as he forces the structure, through accumulated hydrogen, carbon and ammonia at the roots, *back towards* the luxuriance of the carboniferous era he may also conceive that he may, referably to seedless and flowerless vegetation, and, to a given extent also, as to the flowering and seed bearing races, *apply accumulated* Electricity.

It is an undoubted fact, which may be shown by a hundred fac-simile plates in my possession, that the vegetation of that era was, not only as luxuriant as I stated in my previous lecture, but that it was then *twenty fold what it now is*.

48. The question, and *the only one*, then, is—Hydrogen and carbon, with the other requisites, being *naturally* or *artificially*, and *rateably supplied*, how far will Electricity, in connection with them, *safely and profitably* assist in the operation, in one or both of the ranges of the vegetable existence to which I have adverted. This, as I have before said, can only, as I apprehend, be determined by practical observation and experiment. It may, as a matter of pleasing instruction, be as well essayed in any part of the city, as in the country, in the *ordinary plants* of a family.

It is what they seem to be trying in Europe. It is what we should try here too, if we mean to place and keep our intellects on a par with theirs. W. A. SEELY.

New-York, March 3, 1845.

DURHAM OXEN.

To the Editor of the Mark-Lane Express:

SIR: It may be new to many of the readers of your valuable journal, to learn the particulars of the best ox ever bred in England. This wonderful animal, commonly called the Durham Ox, or Day's Ox, I saw several times, and knew the owner, Mr. John Day, well. The said Durham Ox was sold to Mr. Bulmer, of Harnley, near Bedale, for public exhibition, at the price of £140; this was in February, 1801; he was at that time computed to weigh 168 stone of 14 lbs., his live weight being 252 stones. Mr. Bulmer having obtained a carriage for his conveyance, traveled with him five weeks, and then sold him and the carriage at Rotherham, to Mr. John Day, on the 15th May, 1801, at £250.

On the 21st of May Mr. Day could have sold him for 500 guineas, on the 13th of June for 1,000 guineas, and on the 8th of July for 2,000 guineas. Mr. Day traveled with him six years through the principal parts of England and Scotland, till at Oxford, on the 19th of Februarv, 1807, the ox dislocated his hip bone, and continued in that state till the 15th of April, when he was slaughtered, and notwithstanding he must have lost considerably in weight during those eight weeks of great pain and illness, his carcass weighed, at 14 lbs. to the stone. four quarters, 165 stone, 12 lbs.; tallow, 11 stone 2 lbs.; hide, 10 stone, 2 lbs. At eight years old this wonderful animal weighed, alive, 83 cwt. 3 qrs., the greatest weight ever known; he girthed in the least place, behind his shoulders, 11 feet 1 inch.

This large, handsome ox, brought the Durham cattle into such a high repute; nay, this ox speaks volumes in favor of even a single cross of this blood, for the ox was the produce of a common cow, which had been put to Favorite, at five years old. This single cross striking the admirers with amazement, what a great mistake there has been in not crossing all coarse beasts in Great Britain and Ireland with the pure Durhams! I have no doubt but the Dutch cattle, and most other foreign beasts, will be crossed with them, which will not only put some fat on their backs, but will marble their lean meat with fat, and make them more suitable for our roast-beef-eating metropolis, London, the best and greatest mart in the world.

THE DISEASE IN POTATOES.

VARIOUS THEORIES—THE LAST ENGLISH SUGGESTION.

When it is considered that the Potato Crop of the United States is set down at more than a hundred million of bushels, it will be admitted at once how important it is to discover, if possible, the cause of any disease which may seriously threaten a branch of industry which is followed and much relied upon for subsistence throughout the whole country; for there is not a State in the Union which does not look to it as the principal culinary vegetable. Even in Arkansas, the crop is estimated at more than 50,000 bushels. New-York is put down at 26,553,612 bushels, and, what we should not have expected, the crop of North Carolina, prior to the last census, is stated to have been 4,517,863 bushels, though we suppose the mountain ranges of the Southern States to be exceedingly well adapted to the growth of this important product. In her more than 8,000,000 of bushels of Potatoes, Vermont doubtless finds a great support to her successful sheep husbandry.

The following paper is found in a late number of the London Gardeners' Chronicle. What creates some hesitation in giving full confidence to the theory of the writer is the fact that this disease should have appeared simultaneously in so many parts of the world. A statement appears from a friend of the Editor of the American Agriculturist in his third volume, page 354, to the effect that the disease is to be ascribed to an *insect* attacking the seed Potato when planted. He says:

"In the year 1843 I planted a field of several acres in drills, harrowed the ground level, and top dressed it with lime and charcoal dust. The yield was 432 bushels per acre; at the same time the Potatoes throughout the neighborhood were decayed. This year I planted the same seed in the following manner: The ground was thrown into drills, and manured heavily; the Potatoes were cut into sets of single eyes fourteen days before required for planting, and covered with plaster and lime; they were then placed in the drill, 9 inches apart, tops, centres, and ends separately, to mark the difference in growth; and each alternate three rows then covered with different substances, such as lime, sulphate of ammonia, silicate of potash, &c. When dug, they were all sound except a few rows on which nothing had been used but the manure, and these were decayed, although received only three weeks before planting directly from France. The only reason that I can give why my Potatoes have escaped the rot is, that the above substances used in dressing them were offensive to the insect."

We shall omit nothing which may seem calculated to throw light on this interesting subject. In so doing, as must always happen, many conjectures will be hazarded and suggestions thrown out that may prove fallacious; but it would not be either fair or safe for us to withhold what the reader might deem to be significant and at least worthy of experiment; and, after all, it is equally the interest and the duty of the Farmer to make experiments, and, let us add, to report the result *for his Library* and for the common benefit.

We have no doubt of the soundness of the theory which recommends that Potatoes, as well as fruits, be occasionally renewed, *from the seed.* New and improved varieties may be expected, after a few generations—with some things sooner, with others later. It is said that by planting the stone of the most worthless peach, a fine variety may be expected in three or four generations; the same as to the apple and pear in a somewhat longer time. The famous Mercer Potato has been clearly traced by Mr. Kennedy, near Meadsville, Pennsylvania, to its origin in the seed apple.

THE DISEASE AND FAILURE OF THE POTATO CROP EXPLAINED.

[The following are portions of a paper on this subject, by A. Patullo, Esq., of Edinburgh, read before the Highland and Agricultural Society, on the 7th instant. It has since been published as a separate tract.]

As to the early history of the Potato plant, it appears to have been imported into Ireland from South America more than 200 years ago, and introduced into this country from Ireland about the year 1740, which was a year of scarcity, when a few were brought over to Scotland; but their culture was then confined to the garden, till about the year 1753 or 1754, when they were raised in the field; but the plant has not been extensively cultivated in this country more than seventy years. There are great varieties of the Potato; and the kinds first known in this quarter were the Kidneys, the Leather-coat (called from the roughness of its skin), the Blackamoor (that is, the dark-colored Virginia), and the Killimancas (query, the Dons), which appears to have been a cross between the white and red. The prevailing kinds in our day are, the Kidney, Perthshire Reds, Dons, and Buffs; the latter two being at present most extensively planted in this neighborhood. There is also another species called the Surinam, or Hog Potato, or Yam: this variety is not eaten by the human species, at least in this country, but it has two valuable properties to recommend it, as it is very productive, and has never yet been

known to fail; as also the American Early, which always succeeds.

The first system of degeneracy of the plant in Scotland appeared about the year 1780, when the distemper, called the curl, first appeared in the crop; but it then occurred so rarely, that very little notice was taken of it; but the evil gradually and extensively increased, when, about the years 1784-5, the whole crops of the Lothians were seriously affected by it. A remedy, however, was accidentally discovered, by changing the seed from the high country; and this was and has been the only remedy for the disease of the curl to the present day. At this early period, the seed procured from the high country had to be changed every three or four years; but it was found, as the cultivation of the plant increased so did this disease; and from about the year 1820 up to the year 1835, it was customary to change the seed every other year; and from 1835 to the present year, 1845, the whole seed had to be changed yearly, as it was found that a new disease appeared in the fields: the seed only partially germinated—great blanks or failures took place—and many farmers almost lost their whole crops. This disease in the seed was called the wet and dry rot; and, in many instances, seed from all situations, high and low, has now also failed. These two kinds of disease, which destroy germination, are variously accounted for. Some ascribe the cause to maggots and flies who feed upon and destroy the seed-plants; but this is a consequence, and not a cause; for maggots or flies are only to be found on diseased or putrid vegetables: they riot and banquet on putrefaction: it is their natural food, and there they are only to be found. Plant, then, a sound Potato in a good soil, and properly treated, it will find its way to the surface, and produce a good crop in defiance of all maggots and flies. The seeds of disease, then, must be in the constitution of the plant.

In examining a diseased Potato, which has, as commonly called, blind eyes, and will not germinate, it is plain that there is canker on the skin, and plague spots all over it. This, if planted, will certainly be attacked by the maggots and flies; but the plant is in a state of decay or putrefaction—in fact, a *caput mortuum*—and it properly belongs to the flies and maggots by right of inheritance. The great object to be attained, then, is, to plant sound seed, and the maggots and flies will not relish it. As the crops on the high lands are early checked by frost, and the tops or haulm soon destroyed, they do not fully ripen; and this circumstance has induced farmers in the low districts to take up their crops for seed in a green or unripe state, in order to imitate the operations of nature on the hill grounds; but this plan has also failed. Seed has been often raised from the apple, but in two or three years it curls and degenerates.

It is now generally allowed, and the idea long entertained, that it is quite impossible to raise seed Potatoes without being affected with curl in a low situation, or in a high temperature free of degeneracy or curl; but at an altitude of 400 feet, it then entirely disappears. In this there appears to be a very remarkable peculiarity in the nature and constitution of the plant; but in looking to its origin, general history, cultivation, and general management in this country—its success and failure—I have been led to a far different conclusion. Indeed, from what I have already stated, it must clearly appear to every one, that there can be only one cause for the failure of the plant, viz., *over-cultivation*. The crop too often repeated on the same soil, and too much stimulus applied to the plant, has weakened or destroyed its vital energies, and rendered it incapable of reproduction. In the cultivation and general management of the plant, we have entirely lost sight of nature, which always follows the moderate or middle course; and, by a long train of mismanagement, we have nearly lost this most valuable root; and if we shall persist much longer in following the present unnatural and inconsiderate course of treating it, we shall certainly lose it. Who can contemplate a luxuriant crop of growing Potatoes in full bloom, but must reflect on the immense stimulus applied to produce such a mass of stem, foliage, and blossom, and, at the same time, how much the roots or tubers must be enfeebled and exhausted in producing it? The first practical experience of failure which I met with on my own farm struck me most forcibly. In the year 1837, I had a small quantity of Potatoes for seed, which I had received from the high grounds (the farm of Bonally, in the high part of the parish of Colinton). I thought them very fine; and having selected the best for seed, I manured the ground heavily in the drill with the richest and best dung on the farm, in order to have as many as possible for planting the succeeding year. The extent of ground was about an acre, and I certainly obtained an excellent crop; but *as I never planted a whole field in the same way without some variation, by way of experiment*, (a hint here that will not be lost on the observant reader,) I planted a few drills of similar seed next to them, very moderately manured, and at the time of taking up the crop, this acre was still green in the tops, and we commenced to take up the crop at the opposite side of the field, making them the last to be taken up. The few drills already mentioned were pitted on the end of a pit not meant for seed, and the produce of the acre was pitted by themselves. Next season I planted the greater part of the produce of the acre in the ordinary way, and lost one-third of the crop. I also planted the produce of the few drills in the ordinary way, and had a little curl, but not a single blank. I was very particular in all the operations of pitting and cutting, and I am quite sure that the seed was not injured in that way.

I come now to state an instance, and one of many that can be adduced, which most clearly and satisfactorily supports my assertion, viz., that a heavy crop, grown in any situation or soil, will always be found to produce, in a certain degree, *degenerate and tainted seed*. The following is a letter I lately received from Mr. Cunninghame, tenant, Harlaw, in the parish of Currie. This farm is situated near the foot of the Pentland Hills, at an elevation of more than 500 feet above the level of the sea. The following is a copy of Mr. Cunninghame's letter:—

"HARLAW, May 5, 1845.

"*My dear Sir:* The new land in the Bog-park was never in crop in my remembrance, either white crop or green. I drained the land every furrow: they were old round-about ridges. I plowed the land, and part of it I sowed with oats, and harrowed the Potato land along with what was intended for oats. In the Spring of last year—about the end of April, the 20th or 24th of the month—I employed two men to plant them, and put them in with the spade:

they put the line across the furrows, and made a rut on each side of the line; turned out the sod, put in the dung about 12 tons per acre, and then returned the sod. I employed a boy with a hoe after them, to blind any of the chinks; and after the crop was well brairded, I dug or rather scraped with a spade betwixt the drills, which were 28 inches wide, and about 20 days after I drew the scrapings to the plants with a hoe. I measured several drills at lifting-time, and the produce was nearly as possible 100 *bolls per acre*—(a boll, we believe, is 400 pounds.)—I planted one drill with Irish Cups, and the crop was good; one drill with Buffs—they were also good; one drill of Reds, from Ratho (the low country), which turned out a bad crop; the rest was from Biggar-shiel, all Dons. My other Potatoes were planted in the field adjoining.—About the middle of May I gave them about 20 tons of dung per acre. I began about the first week of October to lift them, and lifted the bog-crop first, and they were all pitted on the same plan; the pits about 4 feet wide, and about 5 inches taken out of the bottom, the Potatoes put in, covered with straw, and afterwards about 4 inches of earth. I put in wooden ventilators, square boxes made of paling-rail, with openings at the bottom, about 2 feet down amongst the Potatoes, and the other end above the pit. I let them (the ventilators) stand this way for four or five weeks, and then put on about 10 inches of earth; as soon as I saw an appearance of frost I stopped them with straw. I may add that the boxes ran short, and I finished with straw, which seemed equally well to answer the purpose. I have just put the last of the Potatoes in the barn to-day, to cut for seed. Those from the new land and great crop do not appear to be so good seed as my other Potatoes, which were not half the crop: there seems to be more blind-eyes amongst them. My going or cropping land has lain twice in pasture during the last 15 years. I do not think it possible that any of the seed which I planted could be heated after cutting; and I had no opportunity of knowing whether those planted had been heated before I received them: of course they have not been heated this season. I forgot to mention that the bog-land, before draining, was all naturally wet. The reason I gave it so little manure was, that the cattle had lain in that part of the field, and the land was enriched from that circumstance.

"I am, &c., JOHN CUNNINGHAME.

"P. S. My brother at Kenleith got some seed Potatoes from the west country—nine bolls from new land, and one from going or cropping land and he says that the latter is the best seed, having fewer blind-eyes."

The above completely confirms what I have already advanced, viz., that a heavy or overgrown crop of Potatoes, in any soil or situation, will always yield bad Seed-Potatoes; and that over-cultivation is the sole or chief cause of the degeneracy of the plant.

It seems self-evident, then, that the crop first degenerated in the rich and cultivated districts of the low country, producing curl in the plant; that, as the cultivation of it increased, the curl increased, and a change of seed was found necessary from the high country; that within these ten years past, in addition to curl, that blanks or entire failure of the plant has taken place in our fields, and the disease of curl, and the complete or partial failure, has kept pace with the extended cultivation of the plant, and in the exact ratio of the quantity of stimulus or manure applied; and that the first blanks in the fields have appeared to have continued since the manure has been so much increased to the crops, viz., during the last ten years, the quantity of manure applied to the crop having been increased one-fourth generally all over the country, as the increased quantity of manure (when the crop has succeeded) has in a very remarkable degree increased the return, to the extent, in many cases, of one-third more Potatoes; and in some instances the crop has been doubled. But as the crop is increased in quantity, so does it decrease in quality; and very nearly in the same ratio.

That the plant has continued longer in the hill-districts, free of curl and failure, is no argument against my theory, as it is the poverty of the soil and the want of manure that have saved it. It not only has received less manure—for they have little to give it—but it has not received at its roots so much of that heating and stimulating article, horse-dung or stable-manure; which I attribute as the cause of assisting materially in the deterioration of the root. The crops also, until of late years, have not been so often repeated on the same soil; and a change of crop is of great advantage to the health and well-being of any plant.

I come now to the cure or remedy of the disease, or the best means of procuring and raising good seed—as I do not yet despair of seeing good seed, and the best that can be raised, to be found in the early and highly cultivated districts. It must, of course, be obvious to all, that, if possible, seed should be obtained from South America; but as it would not be possible to procure more than a very limited quantity, we ought to try what can be done to improve those of our own country. I would recommend to select the best varieties, and raise from the apple; but, in the mean time, to have the best and soundest seed for present planting—always, of course, avoiding the produce of a great crop, grown in any situation or soil. The land intended for seed should be plowed deep in the autumn, and, if possible, by the trench-plow. The drills to be 30 inches wide, and manured moderately with, if possible, a mixture of earth; and if earth is not previously mixed with the manure, a little may be drawn into the drills above the manure, and before planting the seed. Mr. Dickson, Saughton, near Edinburgh, who has been very successful in raising good crops of Potatoes, is very judiciously, this year, mixing all the manure intended for Potatoes with earth. The ground intended for seed should be planted with whole Potatoes, and about 14 inches apart; or the Potato cut in two, and planted at 10 inches—(both may be tried;) the plants to be placed near the surface, and never highly earthed up by the plow, as it is natural for the tubers of the plant to run upwards; and the more of them, in ripening, that may be exposed to the sun and air, (greened,) they will make so much the better seed. To be taken up rather green or unripe than otherwise, but approaching to a ripe state. To be placed in pits, (in an airy situation,) at about 2½ feet at bottom: they may be carried up pretty high, and the pits may be made of a tolerable length. They should have first a little earth thrown over them—say half an inch—and then a good covering of straw, finishing with a few inches deep of earth, as it is the straw which will defend them from frost; and a few straw funnels, at short distances, is all that is necessary.

The seed Potatoes should be planted by the 1st of May, at farthest. In the late districts, as the seed may be injured by the frost before taken up, they could be well earthed up by the plow a short time before the frost may be expected; and the same may be done in the low country; but of course they do not run an equal risk so early in the season, although we all know that a very slight degree of frost will injure the Potato. Those not meant for seed ought to be managed much in the same way; giving the land, however, more manure, and planting deeper; as the Potato, if greened, will of course be unfit for food. I would advise the experiment of topping or cutting the Potato-tops when too luxuriant. It may be done in this way:—A person, with a common harvest reaping-hook, about the time of the decay of the blossom, should be employed to go along the drills and cut off the tops, about 2 inches or so below the blossom: this will not only prevent them from seeding, but will check the luxuriance of the stems, and save the exhausted roots or tubers.

I have always thought that the produce of any overgrown or luxuriant white crop produced inferior seed; and I suspect that it will be found that all white and green crops may be too highly cultivated. It is well known that turnip-roots rot and decay prematurely from the application of too much manure. I have also long entertained the idea that smut in wheat, barley, and oats, has always arisen from over-cultivation; and, if we shall find out the cause, we can have less difficulty in finding a remedy. I therefore hope that Agriculturists will assist me in exploring the field of over-cultivation, which has seldom or never been thought of, as almost every Farmer has gone on upon the principle that too much stimulus could not be applied: the crop may have been too luxuriant to be profitable, but the degeneracy of the seed or root has been invariably lost sight of.—We must, then, bear in mind that Dame Nature may be assisted or followed with success; but if we shall attempt to deviate from her law, we are sure to fail.

Note.—The author of "The Problem Solved," in a very ingenious treatise on the subject, has pointed out the probable effects of cutting the Potato in the Spring or bleeding season, and also on producing and raising seed from the apple. In planting the Potato whole, of course this objection would be obviated.

I have mentioned that the American Early, and the Surinam Potato or Yam, have not been known to fail. Neither of these has been extensively cultivated; and although not an absolute failure, yet it is well known that they have degenerated; and the Yam, for this and other causes, has nearly disappeared from our fields. My plea is, that long-continued and extensive cultivation will finally destroy the plant; and the Surinam and American Early form no exception to the theory advanced.

POTATOES.—Early in January last I planted a plot of ground with Soden's early Oxford Potatoes; half of the plot I planted with cut sets, the other half with whole Potatoes. They were all planted 5 inches in depth, and were not covered with any manure or litter of any kind.—The frost has not injured the whole Potatoes in the least, as they have all come up and are looking very healthy; but it has entirely destroyed the cut sets. They were all planted in a stiff, damp soil, which was frozen for several inches below them. [C. J. Perry, Handsworth.

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AFTER-CULTURE OF DRILL POTATOES.—SIR: The after-culture of drill Potatoes is usually done by paring or cutting the drill, at each side of the plant, and within three inches of it; then the drill harrow and roller, if necessary, are applied, to break any lumps the harrow may bring to the surface; weeding, &c. is then performed; the fine earth is then put to the Potatoes by a double moulding plow; this operation is again executed when the work is finished. It is after this fashion that all the practical farmers act, that I know of, with the exception of one, who, I admit, is entitled to take the first place, as a really practical and successful agriculturist. His plan is, not to pare or cut his drills, but to cut the centre between them; and then put the earth up to the plant. His reason for not cutting is, not to injure or disturb the roots; but he takes great pains in hoeing and weeding.

It may be, that some information can be supplied through the columns of the *Gazette* on this practice; and perhaps you might favor the public with your own observations, on the relative merits of both plans.

[In the course of our practice, we never had the earth cut away from the drill, unless by the coulters of the scarifier; and this we consider necessary, in order to have the ground properly cleared, and kept loose and open for the admission of air. This can be done with safety, in the early stages of the plant, before the roots have extended themselves; yet we consider a distance of three inches from the plant too little, as the manure would be liable to be dragged out, and the sets displaced. Six inches on each side of the plant, will be near enough in the first instance; and in our succeeding application of the implement, it must be contracted according to the increased space occupied by the roots.]

THE POTATO PROBLEM SOLVED.—The Cause of the Disease in the Potato pointed out; Remedies exemplified; and New Systems of Potato Cultivation proposed. By Robert Arthur. W. H. Lizars, 3 St. James's-square, Edinburgh. 47 pages.

ANY new suggestion towards the explanation and prevention of the Potato rot is worthy of attention and trial, and especially one so well founded on *analogy* as that brought forward by Mr. Arthur. In reference to the propagation of plants by means of eyes he quotes the following passages from Dr. Lindley's work on the "Theory of Horticulture."—"The only species very generally so increased, are the Potato and the Vine." "In order to insure success in this operation upon the Vine, it is only necessary that the *eye should be dormant;*" and reasoning from this on analogy he recommends Potatoes to be cut for seed at a period when the juice in them is *dormant*, so to speak; when in fact the set will not bleed at a cut surface. He shows, in a variety of instances, though not in so many perhaps as would be needed to prove "the Potato problem at last to be "*solved*," that the practice of cutting the Potato sets in Autumn instead of Spring perfectly answers. Perhaps the most striking confirmation of his views would be the general success of the Potato crop this year—for the sets, owing to the frost, must have been much in that dormant state which he recommends when cut this Spring. We could easily extract many interesting paragraphs from this little work, but we have no wish to *satisfy* the curiosity of our readers and interfere with its sale by transferring its contents to our columns. The book is written by a practical gardener, and well deserves extensive perusal.

AUTUMN-PLANTED POTATOES.—"Este" planted some Potatoes in October, following the advice given in the *Gardeners' Chronicle*.—The earth was drawn into a ridge over the sets, which were thus 5 inches under ground. The frost penetrated 8 inches, being tried on purpose, yet on examining the sets last week all that were examined were found unhurt and sprouting. Nearly a quarter of an acre was planted. [We have the same report to make; so that the frost question may be considered settled.]

POTATO CULTURE.—This being a subject in which every one is interested, I think it cannot be too much discussed, as every hint at this season must be of benefit to some parties. I have examined those of mine, planted in January last, and find the whole tubers now beginning to bud, but the cut ones are every one rotten, wherefore I consider it to be folly in any one to plant cut sets in Autumn or Winter. They cannot stand much wet without rotting, nor can they endure much dry weather, as then by losing the water which forms a great part of their structure, they equally become inert from what is termed dry rot, so that either too early or too late planting does not suit them, but as stated by a correspondent in last week's *Gazette* just when they naturally begin to show signs of vegetating. Of course it is clearly proved that as far as the safety of the seed goes whole tubers may be set at any time by a little care being paid to the manner of putting them in the ground, although, if to remain long in the earth, they should be carefully selected free from cracks or blemishes, for otherwise they would share the fate of the cut ones.

[John Thomas, Wem, Salop.

EXPEDITIOUS MODE OF PLANTING POTATOES.—(*From the Farmers' Gazette.*)—SIR: I see in this day's paper a remark regarding a speedy way of planting Potatoes; and as I have planted, in ten days, twenty-two English acres, which I think good work, I give you my plan:—

I have the field first cleared of weeds, and harrowed, so as to leave no obstacle in the way. I keep seven horses at work: two opening and closing drills as fast as they can go, the other five drawing out manure and sets (the manure being principally in the field.) I put two men to assist the cart-men in filling the carts, so as to occasion no delay. I keep also two men in the field, to assist in unloading, one working at each hind corner of the cart. The driver, standing in the cart, with his grape (fork) throws the dung into the middle drill—the two others manuring their respective drills on each side of him.—Three drills are thus dunged, while the horse is slowly moving onwards. After them I have three women spreading the grapefuls thus deposited, and three more dropping the Potatoes about ten inches apart. I have in this way, in one day, put in nearly three English acres—the one pair of horses opening and closing. The great thing is, to have all things ready before commencing, so that no time may be lost: and also to have sufficient hands, so as to prevent the horses from being kept unnecessarily idle.

Yours, &c. A SUBSCRIBER.

GYPSUM IN SOUTH CAROLINA.—The Southern Agriculturist says "a specimen of Gypsum was lately sent to Dr. Gibbes of Columbia, from Mr. Ingraham's on Cooper river. It resembles the gypsum of the Paris basin.

THE ATMOSPHERE OF HOT-HOUSES.—I am astonished that so great a portion of the horticultural world should still be content with the capricious and uncertain degree of atmospheric humidity in the great majority of hot-houses of the present day. We hear of nice little flanges or covers, of about an inch in depth, being cast, it may be with the piping; and which the hot-water man, of course, deems perfection, but which I consider play-things; and we sometimes hear of sudden deluges of steam being shot, as it were, from a 48-pounder, into the atmosphere of the house, which, for the space of half an hour, casts a London fog completely into the shade; and this is what is called following Nature, whilst both are equally unnatural.—What is wanted for vegetation in general, is an immunity from excessive humidity, as well as from fitful drouth. I am quite of opinion that no invention will ever excel, for simplicity and efficiency, a cemented brick trench, with the bottom pipe resting on it, and a permanent source of water in a cistern overhead, with a tap to run into the trench. The bottom, or return pipe, is seldom more than from 90° to 110° in most hot-water apparatus, and this imbedded in water, or partially so, will produce humidity sufficient for any orchidaceous or other hot-house. Houses supplied in this way possess an atmosphere exactly resembling a genial evening in May, and the only hygrometer wanted to prove this is the nose of a thorough practical man. In addition to this, I am of opinion that there should be apertures in the front wall, open night and day, and capable of graduation; this was long since recommended by the late Mr. Knight. By means of these the air will be in constant circulation, preventing stagnation on the one hand, and preserving a due proportion of the constituent and vivifying gases of the natural atmosphere on the other. Red-spider and such like pests will be seldom seen in such structures, provided a clever system of potting (founded on the permeability of the soil to the atmosphere, by means of thorough drainage, and the free use of undecomposed turf, with its native texture,) be conjoined with it. These front wall apertures, or ventilators, should enter just over the piping, if possible; the effect of which would be to carry the artificially moistened atmosphere through the whole body of the house. By the flange or other mode (in which sudden deluges of piping hot steam is produced) the furious steam is carried immediately to the roof of the house, where, of course, it is condensed, and descends in drip; and the greater the difference between the outer and inner atmospheres the greater is the amount of drip, and consequently the greater is the dryness of the atmosphere below, especially if the fitful cause of steam become suddenly short of supply. Although I advocate a constant source of pure air from the front, I would have the glass roof, if possible, as close as a Ward's Case; and now that the duty is to be removed from glass, I make no doubt we shall soon be enabled to bid defiance to both leakage and hailstones. Of course, I would have ample ventilators at the back, to be used in cases of necessity; these, however, in general are mere wasters of heat and moisture. Very different is the office of the front apertures.

[R. Errington.

GRAFTING THE CHESTNUT ON THE OAK.—In the department of Correze, an oak, engrafted eight years ago with the chestnut, has produced at length chestnuts of a good quality.

FEEDING OF ANIMALS.—Hay is the kind of fodder most frequently used, and may be considered almost as the normal food of those animals which are of the most importance in the farm. It is on this account that it may conveniently be taken as a standard by which other kinds of vegetable food may be compared. The quality, however, of hay varies extremely; our standard, therefore, must be good meadow hay. It appears, from the analysis I have made at various periods, that in the state in which it is consumed it contains from 1 to 1½ per cent. of azote. As, however, the determination of its nutritive value is of great importance, I shall point out the mode of proceeding, in order to obtain specimens representing as fairly as possible the mass from whence they are taken.—The method is applicable to other kinds of fodder. Hay is composed of four distinct parts, each of which has a very different nutritive value. It is of consequence, then, that in a specimen taken for the determination of the azote it contains, each of these parts should be properly represented. I distingush in hay—1, the woody stems; 2, the slender straws or stems to which the leaves were attached; 3, the leaves, flowers, and seeds. A small portion of hay is taken and carefully sorted, and the parts are weighed separately. In a specimen of strong meadow hay, made in 1841, I found—

	lbs.		*drachms.*
Woody stems.....	2,404	Taken for analysis,	680
Straws or very slender stems	8,493	" "	239
Flowers, leaves, and a few seeds.....	1,764	" "	497
Mixture analysed.....			1,416

My analysis gave—

Azote, per cent	1.19
Contract hay for Parisian Cavalry, 1840.....	1.21
Hay from Alsace of 1835.....	1.04
" " 1837.....	1.15
Mean of four samples, in the state in which it is consumed.....	1.15

In this state it contains from 11 to 12 per cent. of moisture, which is dissipated by desiccation. Since albumen, caseum, and vegetable gluten, contain 16 per cent. of azote, the animal matter (or flesh) may be estimated at 7.2 per cent. Hay does not, however, always present this quantum of azote; that, for instance, from marshy land contains decidedly less. Some, on the contrary, is more rich in the animal principle. The same hay will give a larger proportion if the woody stems which it contains be removed. The second crop is generally more nutritious than the first, as we have often proved at Bechelbronn; but it is considered, I know not why, to be less fit for horses. Perhaps this arises from its being more liable to be more or less spoiled in the stack, in consequence of its being made in damper weather.

A second crop gave on analysis..	2	per cent of azote.
A choice sample of the first quality	1.29	" "
Hay divested of the greater part of the woody stems, and consisting principally of bottom..	2.1	" "

These examples are sufficient to prove that, in considering the substitution of other food for hay, attention must be paid to the quality. In the table which I have prepared, I have taken, as the basis of the equivalents, ordinary meadow hay, containing 1.15 per cent. of azote and 11 per cent. of water. The importance of a table of equivalents, as regards different kinds of food, is duly appreciated by all agriculturists; and great thanks are due to those who have taken pains to arrive at a knowledge of their relative value. The mode of using such tables is very simple. The numbers placed below the value of hay indicate the weight which may be substituted for 100 lbs. of hay. For instance, according to Block, 365 lbs. of carrots may be substituted for 100 lbs. of meadow hay. According to Pabst, 60 lbs. oats=100 lbs. hay.—Would we then substitute Jerusalem artichokes for 3.3 lbs. of oats, which form part of the food of a horse, we find in the table 60 lbs. of oats=274 lbs. Jerusalem artichokes, whence we conclude that it will require 15 lbs. of the tubers to compensate the above named weight of oats.—A certain knowledge of the relative value of food may be of real benefit in rural economy, as it may guide the farmer in his determination of what kind of diet is the most profitable. Suppose, for example, 165¼ lbs. of potatoes to be worth 10*d*. in the market, when 220½ lbs. of hay is worth 5*s*. Then, if we admit, in accordance with theory, that 220½ lbs. of hay=695 of the tubers, it is clear, on comparing the price of these equivalents, that there is a considerable advantage in buying potatoes, for the 695 lbs. of potatoes would cost only 3*s*. 6*d*. At this price it would be beneficial to the farmer to sell his hay and replace it with potatoes. The equivalents which I have deduced from the analysis of various kinds of food agree in most cases with the numbers assigned by practical men; sometimes, on the contrary, they differ remarkably. It must, however, be observed, that the equivalents of practical writers exhibit differences of the same nature. Schnee and Thaer give as the equivalent of 100 lbs. of hay 666 lbs. of wheat straw, whereas Flotow gives 175 lbs. According to Meyer, 290 lbs. of turnips=100 lbs. of hay, whereas Middleton gives 800 as the equivalent, a result which accords with that of theory.—Block gives 30 as the equivalent of peas, while Thaer, who is quite as high an authority, gives 66. The same agriculturist gives 460 as the equivalent of mangel-wurzel, while Pabst and Meyer give 250, and M. de Dombasle 261.—Making every allowance for the difficulties of the subject, it is hard to account for these great discrepancies. As regards the marvellous agreement which the practical results frequently present, one cannot but be convinced that authors have often silently transcribed the results obtained previously by others. It is often impossible to decide whether the data of agricultural works are original or merely transcriptions.—Every one at all acquainted with experiments will at once decide that 11 isolated observers can never have arrived in the case of Lucerne hay at the exact equivalent of 90, or that five have obtained precisely 600 for Cabbages.

[Boussingault.

MANURE FOR ONIONS.—I have always succeeded in the following way, being the surest and most economical:—Take off about 4 inches of the earth on the surface, the length and width of your bed, so that the ground under be solid. Spread stable-dung well over, about 4 inches in thickness, and then cover the same over with the earth taken from the surface. Sow your seeds rough, and you are almost sure of an abundant crop; and the land is the best for parsnips and carrots the following year.

[R. F. J., Ottery

EDITOR'S TABLE.

AGRICULTURAL JOURNALS.—We should be glad to give in an early number, a list of all the Agricultural papers in the Union—their place of publication and terms. The matter of "exchanges" is one entirely under the control of the Publishers of the FARMERS' LIBRARY, and they instruct us to say, that they will be happy to exchange with all Agricultural Magazines and Periodicals, without reference to difference of price. Should any of our cotemporaries deem themselves obliged by this offer, they will best know how to make that feeling apparent. The wish is to maintain with them, a rivalry, only in doing good to each other and to the *country*.

WASHINGTON'S LETTERS ON AGRICULTURE.—We cannot do better than employ the words of a much esteemed colleague, the Editor of the New-England Farmer, who says of these letters:

"Every thing that emanated from the pen of this illustrious man, has a sacred value to all true Americans. His letters on Agriculture, addressed to Sir John Sinclair, have recently been published by Franklin Knight, of Washington City, in a style that renders their possession peculiarly desirable by every American farmer, and, indeed, by *all* Americans—the letters being engraved from the original. and being perfect *fac similes* of WASHINGTON'S hand-writing. This mere fact of itself, renders the letters of great value to the American public."

To the above we add a single suggestion or inquiry—whether it might not be well to place these letters in the common schools of the country, were it only to familiarize the rising generation with the autograph of the Pater Patriæ, and the better to impress on it from such high authority, his sentiments as expressed in one of his letters to Sir ARTHUR YOUNG:

"The more I am acquainted with Agricultural affairs, the better I am pleased with them; insomuch, that I can no where find so great satisfaction as in their innocent and useful pursuits.

NOTICES OF NEW BOOKS.

Even if we had time to read and to write *critical* notices of the books which may be laid on our table; we are not sure that it would not better comport with justice to the author, and with the interest of the publishers, to make these notices *descriptive*, rather than *critical*; only giving our readers an inkling of their contents, and leaving them to judge how far the subjects as thus indicated, invite further acquaintance with the work. On this principle we shall proceed, and even for this we have not room in this number to notice all those which have come latest to hand. The following is a most captivating title of one scarcely dry from the press of Messrs. Wiley & Putnam, from an author of well established reputation.

THE FRUITS AND FRUIT TREES OF AMERICA; Or, The Culture, Propagation and Management, in the the Garden and Orchard, of Fruit Trees generally, with descriptions of all the finest varieties of Fruit, native and foreign, cultivated in this Country. By A. J. DOWNING.

We have not had time to examine it, but who need fear to enlist under such a flag and flag-bearer?

☞ Several works from those eminent publishers of Philad. Messrs. LEA & BLANCHARD, have been kindly forwarded through Messrs. Wiley & Putnam. These appear to have been either edited or *authored*, by Mr. J. S. SKINNER, and as that gentleman is a near relative of ours, we do not feel at liberty to speak as fully of them, as otherwise we might do. One is an American edition of

YOUATT ON THE HORSE.—In this case, more than 60 pages have been added by Mr. S. partly on the American Trotting Horse, besides an elaborate essay on the natural history and uses of the Ass and the Mule.

CLATER ON THE DISEASES OF HORSES, by the same author, editor and publishers, is a smaller work. Speaking of them both, the American Editor in his preface, referring to the merits of the English copies, says: "The two are adapted to meet the demands of the scholar and the groom; the former (Youatt on the Horse) claiming a place in the Library of every gentleman, as this one should should be found for daily reference in every stable, along with the curry-comb and the brush." Yet another volume, by and from the same parties.

DISEASES OF SHEEP AND CATTLE.—To this Mr. Skinner, has appended a treatise on the Economy and value of Oxen, for farm labor, with hints and illustrations for breaking, gearing, &c.

THE SPORTSMAN AND HIS DOG, by J. S. Skinner, is the last, and very recently from the same publishers. The author attempts to justify his avowed partiality for the canine race,

when of *established and pure lineage*, by citing the example of illustrious men. To other great names he might have added that of the immortal Linnæus, who says, among other things, "he is the most faithful of all creatures; dwells with man; fawns on his returning lord; bears nŏt in his memory the stripes he inflicts upon him; runs before him on his journey; looks back at a cross-way, and seeks obediently that which is lost; holds watch by night; announces the approach of any one, and guards the property."

"THE FARMER'S AND EMIGRANT'S HAND-BOOK," is an acceptable offering, from the prolific press of Messrs. D. APPLETON & Co. distinguished for discrimination and enterprise in "their line." It has already gone to a second edition, and ought to be valuable,—"comprising the clearing of the forest and prairie land—gardening—farming generally—farriery—cookery—and the *prevention and cure of diseases*!" All these guide books, by the bye, seem to take it for granted, that every man from abroad, is to wend his way to the far *West*; as if there were not millions of acres of uncultivated land left in the "*old thirteen!*" We wish the Southern people would take measures to let Europeans know that there is such a water as the Chesapeake Bay, and such a region as the mountain sides and mountain vallies of cheap and rich land, in a climate so healthy as to need no books to teach either prevention or cure;—where there are no fevers, and where none die of consumption except *Doctors!* If they will provide a conveyance to these lands, and employ a certain "writer, under the signature of WILLIAM DARBY," to write a "guide book," the New-York public works will no longer carry *all* the emigrants that come to America, through to the lakes on their way to Oregon.

☞ BOUISSINGAULT'S WORK ON RURAL ECONOMY has been well reprinted by D. Appleton & Co., and is without doubt a work which well illustrates the existence of a highly improved taste in what concerns the science and the literature of Agriculture. True, "Mr. Geo. Law, Agriculturist," repudiates the translation, as not being genuine; but, bating any want of literal accuracy, or nicety in the translation, the book contains a mass of very valuable information for every Farmer who desires to keep pace with the progress of scientific development in all that is connected with his pursuit and chief business in life.

☞ To Mr. S. S. RANDALL, General Deputy Superintendent of the Common Schools of New-York, we are much indebted for a copy of his clear and admirable "DIGEST OF THE COMMON SCHOOL SYSTEM," and for the REPORT OF THE SUPERINTENDENT OF COMMON SCHOOLS FOR 1845, no less for the manner than the matter of the offering. Well does this volume accomplish the "design" of the author, as thus announced in the preface:—

"A historical sketch of the origin and progress of the system from its inception to the present period, accompanied by a brief exposition of its present condition, has been annexed to the work, with the design of rendering it more acceptable as well to our own citizens as to those of other portions of the Union, who may feel an interest in tracing the gradual advancement of our legislation on this important subject, and in ascertaining the prominent features of our system, as moulded by the successive improvements consequent upon an experience of nearly forty years."

With the concurrence and hoped-for aid of Mr. R., we shall use these volumes in a manner which may serve to assist the particular efforts of true philanthropists in other States where endeavors are beginning to be made to establish general and practical systems of education—a matter which is never to be lost sight of in all plans for the *improvement of the Agriculture of the States*. For as surely as the continued fertility of land depends on the nature of the substratum, so surely does the success of every scheme for meliorating the condition of any people, in any and in all their branches of industry, as well as in their morals, depend on their being well instructed in all that pertains to the occupations on which they are to rely for their support. An ignorant people can never be a prosperous one; they are ever liable to be abused, for there are always demagogues and hypocrites on the lookout, ready "booted and spurred" to ride them.

It shall not be our fault, according to our poor ability, if the Agricultural class does not get its share of knowledge of what science is discovering and experience putting in practice for their benefit.

VEGETABLE SILK.—The latitude of Tripoli, in Barbary, whence this plant was received, is 32° 51′ 50″ North, longitude 13° 11′ 42″ East of Greenwich.

The general result of the meteorological observations which accompanied the paper on Vegetable Silk was, first, as to RAIN: The aggregate for the year was 18·05 inches, and the writer says that in fourteen years' residence there he does not recollect ever seeing a long-continued rain, nor a day of "entire cloudiness." As to HEAT, the maximum was in July 106° Fahrenheit; the minimum 42° in January.

There are other meteorological views presented in this table, such as observations on the *Winds* and *Currents*, which may prove interesting to Professor Silliman, Mr. Espy and others, whose researches have contributed to

give us a name and a standing among the *Savans* of the world.

We are aware of the resemblance of this plant to our common Milkweed, (*Asclepias tuberosa.*) It is probable that it is of the same class and order, viz.: *Gynandria, pentagynia;* but the species, and even the genus, is undoubtedly different. The *Asclepias* grows abundantly in our fields, and seems most to affect light and arid soils. The Silk Plant would be likely to flourish in the same situations, though it is doubtful if the climate of our Northern, or even Middle States would be sufficiently congenial to it, to make its culture there an object worthy of attention. We should be glad to see the experiment fairly tried in the Southern portions of our country.

GREAT SALE OF CATTLE AT ALBANY.—We are glad, on every account, to learn, by the following from the New-York Express, that Mr. Prentice's great sale of Short-Horns was well attended. From Mr. Allen, of the American Agriculturist, who was in attendance, and who has done much to spread a knowledge of the fine properties of the Short-Horns, we shall doubtless have a more particular account of the sale. We hope this measure on the part of Mr. Prentice does not indicate the withdrawal of the liberal countenance he has given to one of the most important branches of Agricultural economy:

"The entire herd of Short-Horned Cattle of E. P. Prentice, Esq., of Albany, was sold in that city on the 25th inst. The cows were sold from $225 to $100; heifers in proportion. There was a great deal of interest attending the sale, which shows that the spirit for Agriculture is wide awake in this State."

Since writing the above, we have received the following, from a correspondent in Albany. It will be seen that the cows averaged nearly $150. It is to be hoped that those into whose hands this fine stock has fallen will keep them in a manner that shall do justice to their breed and breeder:

CITIZEN OFFICE, Albany, June 25.

The interest excited by the sale of the entire herd of improved Short-Horned Cattle of E. P. Prentice, Esq., of this city, brought a host of visiters to the sale.

Annexed is a summary of the sales with the names of the purchasers, made up from the catalogue of the auctioneers, Joshua I. Jones & Parke.

Names.	*Purchasers.*	*Residence.*	*Price.*
Flora, cow, imp.	J. B. Nott	Albany Co.	$150
Caty, heifer	W. S. Parker	Brooklyn	100
Calf of Flora	"	"	40
Miss Rose, cow	J. S. Wheeler	Hyde Park	140
Roan heifer	Wm. Kelly	Rhinebeck	70
Catharine, cow	M. Bates	New-York	105
Balize, bull calf	—— Green		55
Matilda, claimed by the owner.			
Snowball, cow	Smith	Long Island.	100
Nun, cow	Wm. Kelly	Rhinebeck	110
Melissa, cow	W. S. Parker	Brooklyn	120
Caroline, cow, passed.			
Cora, cow	J. McNaughton	Albany	125
Meg, heifer	Wm. Kelly	Rhinebeck	65
Tyro, bull calf	J. B. Nott	Albany	55
Daisy, cow	Dr. McNaughton	"	105
Nell, cow	M. Bates	New-York	225
Diana, cow	J. W. Bishop	Wash. Co.	155
Tecumseh, bull	J. Parker	Brooklyn	200
Betty, calf	Wm. Kelly	Rhinebeck	55
Swally, cow, claimed by owner.			
Calf of Dutchess			30
Rover, heifer	D. P. Douw	Albany	70
Charlotte, cow	J. W. Bishop	Wash. Co.	190
Calf of Fairfax	J. H. Prentice		55
Ada, cow	R. H. Green		170
Calf of Ada	W. S. Parker	Brooklyn	45
Juda, heifer	E. S. Prentice		250
Duke, allowed to owner.			
Appolonia, cow	J. P. Brayton	Albany	160
Louisa, cow	R. H. Green		150
Burley, heifer	V. P. Douw	Albany	80
Splendor, cow	W. J. Parker	Brooklyn	190
Peggy, cow	J. P. Brayton	Albany	200
Peggy 2d, calf	V. P. Douw	Albany	110
Ramble, heifer	W. J. Barker		75
Esterville, claimed by owner.			
Jenny, cow	E. H. Smith		105
Jilt, heifer	Wm. Kelly	Rhinebeck	60
Calf of Jenny	J. T. Walker	Ohio	25
Aurora, cow	J. B. Nott	Albany	145
Timour, bull calf	M. J. Hays	Canada	80
Calf of Aurora	J. T. Walker	Ohio	75½
Dora, not sold.			
Miss Smith, cow	P. W. Tuthill		80
Fairfax, bull	W. J. Parker		205

AGRICULTURAL REPORTS.

English Agricultural journals give general reports of weather and of crops, with the utmost confidence in their accuracy—as for instance in the last number received of the Mark-Lane Express, the editor pronounces the then growing crop of wheat to be the most promising throughout the kingdom within the recollection of the oldest inhabitant. How impracticable is it, for obvious reasons, to give such reports, with any thing like the same particularity in this country! Look at the difference in the size of the area, over which our diversified crops are growing. Virginia alone for instance, has an area, about one-third larger than England. The State of Ohio contains 8,000 square miles more than Scotland. From Augusta in Maine to New-Orleans is about 200 miles more than from London to Constantinople. We think, however, we may venture to state that the wheat crop of 1845 in the United States will prove to be more than an average one. The accounts from Maryland and Virginia are very favorable. A cool and dry Spring has usually been found favorable to that grain.—Most apprehension had been felt about the crops in Ohio, but Bateham's Cultivator of the 15th ult. says that recent showers had greatly improved the prospects for wheat and corn, so that the yield of wheat "may be as great, if not greater, than for several years past," and has no doubt the crop of corn will prove at least an average one. The crops of Ohio must have an important bearing on the general average of the country, seeing that her product in 1840, of

wheat, was 17,979,647 bushels, and Indian corn 35,552,161.

But what a sombre picture comes up to us from the South. We must hope it is overcharged. The Charleston Courier publishes the following extract from a letter, dated Fairfield District, 14th instant:

"Over my parched and naked fields drouth has reigned and does reign supreme. My once verdant fields of small grain have withered and died under the ravages of the chinch bug; my dwarfish and sickly corn is threatened with annihilation from the same cause; my pastures are ash-beds; my water courses sand-beds; and my cotton barely rears its puny head above the scorched earth. When employed at my business, devasted oat fields, blighted corn, and stinted cotton sicken my heart. When I stroll to uncultivated fields, famished hogs and staggering cattle are my comforters. Clouds pass over, thunder rolls, but all ends in mockery.—Hope has been deferred till I have lost all acquaintance with it. It would seem inevitable that I must not only fail to make my bread, but that the whole country around must share my fate.

A Rich Morsel for American Cheese Mongers.—From that truly national and deservedly popular periodical, *Hunt's Merchants' Magazine*, we derive the following interesting item:

American Cheese Exported into Great Britain.

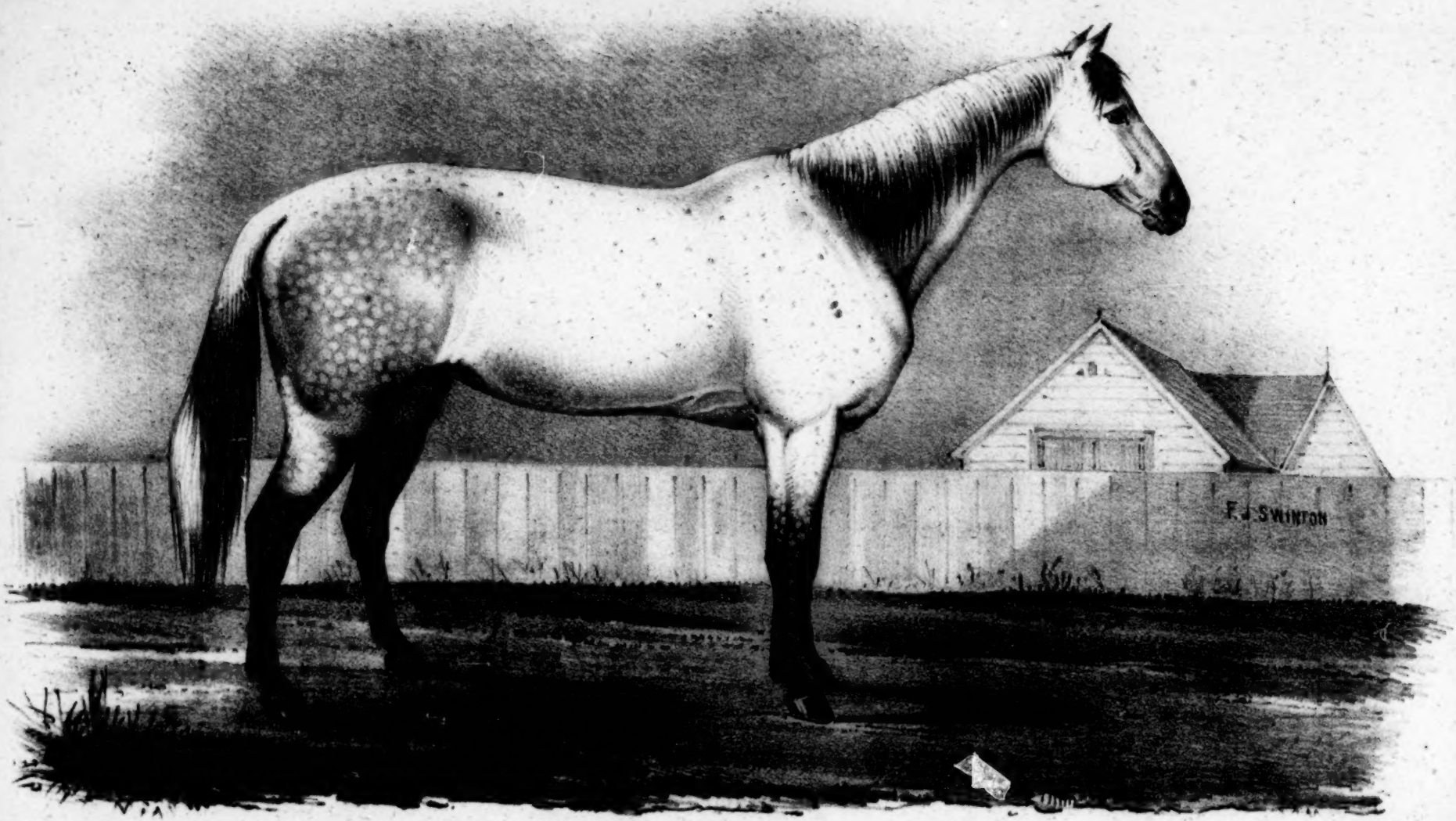
Years.	From Europe. Cwts.	From America. Cwts.	Total. Cwts.
1841,	254,995	15,154	270,149
1842,	165,614	14,098	179,712
1843,	136,998	42,312	179,310
1844,	160,654	53,115	213,769

The Liverpool Times says: "To our American friends, we say, send to this country nothing but a good article, introduce more color into it, and we are sure that in another year England will use four times the quantity of it previous consumption. We shall also be pleased to find that the manufacturer and exporter get a larger share of the prices for which it is sold in England. The writer of this has now upon his table an American Cheese equal to the celebrated 'Stilton,' for which 25 cents per pound is obtained, while this excellent 'American' is sold at 13 cents, only."

PRICES CURRENT.

[Corrected for the Monthly Journal of Agriculture.]

ASHES—Pots, 1st sort	℔ 100 lb.	3 87½	@	—	—
Pearls, 1st sort		4 25	@	—	—
BEESWAX—American Yellow		— 29½	@	—	30
CANDLES—Mould, Tallow	℔ lb.	— 9	@	—	11
Sperm, Eastern and City		— 27	@	—	29
COTTON—From		— 5	@	—	9½
COTTON BAGGING—American		— 14	@	—	—
CORDAGE—American	@ lb.	— 11	@	—	12
DOMESTIC GOODS—Shirtings	℔ y.	— 5	@	—	11
Sheetings		— 6½	@	—	12½
FEATHERS—American, live		— 26	@	—	30
FLAX—American		— 6½	@	—	7
FLOUR & MEAL—Genesee	℔ bbl.	4 62½	@	—	—
Troy		4 56½	@	—	—
Michigan		4 50	@	4	56½
Ohio, flat hoop		4 50	@	4	56½
Ohio, Haywood & Venice		5 37½	@	5	50
Ohio, via New-Orleans		4 25	@	4	37½
Pennsylvania		4 75	@	4	87½
Brandywine		4 87½	@	—	—
Georgetown		4 75	@	4	87½
Baltimore City Mills		4 75	@	—	—
Richmond City Mills		6 —	@	6	50
Richmond Country		4 75	@	—	—
Alexandria, Petersburg, &c.		4 75	@	—	—
Rye Flour		3 —	@	3	25
Corn Meal, Jersey and Brand		2 31½	@	2	56½
Corn Meal, Brandywine	hhd,	11 75	@	—	—
GRAIN—Wheat, Western	℔ bush.	— 95	@	1	06
Wheat, Southern		— 95	@	1	—
Rye, Northern		— 64	@	—	—
Corn, Jersey and North	(meas.)	— 47	@	—	48
Corn Southern	(measure)	— 44	@	—	—
Corn, Southern	(weight)	— 45	@	—	46
Barley, Western		— 50	@	—	52
Oats, Northern		— 38	@	—	40
Oats Southern		— 32	@	—	33
HAY—North River	bales	— 45	@	—	62½
HEMP—American, dew rotted	ton	85 —	@	95	—
" " water rotted		120 —	@	182	50
HOPS—1st sort, 1845		— 12½	@	—	15
IRON—American Pig, No. 1		35 —	@	37	50
" Common		32 50	@	35	—
LIME—Thomaston	℔ bbl,	— 85	@	—	90
LUMBER—Boards, N.R.,	℔M. ft. clr.	30 —	@	35	—
Boards, Eastern Pine		10 —	@	11	—
Boards, Albany Pine	℔pce.	— 7	@	—	17
Plank, Georgia Pine	℔M. ft.	33 —	@	35	—
Heading, White Oak	℔M.	— —	@	45	—
Staves, White Oak, pipe		50 —	@	—	—
Staves, White Oak, hhd		40 —	@	—	—
Staves, White Oak, bbl		30 —	@	—	—
Staves, Red Oak, hhd		25 —	@	26	—
Hoops		25 —	@	30	—
Scantling, Pine, Eastern		14 —	@	16	—
Scantling, Oak		30 —	@	35	—
Timber, Oak	℔ cubic foot	— 25	@	—	37
Timber, White Pine		— 18	@	—	25
Timber, Georgia Yellow Pine		— 35	@	—	40
Shingles, 18 in	℔ bunch	1 50	@	2	—
Shingles, Cedar, 3 feet, 1st quality		22 —	@	24	—
Shingles, Cedar, 3 feet, 2d quality		20 —	@	22	—
Shingles, Cedar, 2 feet, 1st quality		— —	@	17	50
Shingles, Cedar, 2 feet, 2d quality		15 —	@	16	—
Shingles, Cypress, 2 feet		11 —	@	13	—
Shingles, Company		— —	@	30	—
MUSTARD—American		— 16	@	—	31
NAILS—Wrought, 6d to 20d		— 10	@	—	12½
Cut, 4d to 40d		— 4½	@	—	4¾
PLASTER PARIS—℔ ton		— —	@	3	—
PROVISIONS—Beef, M., new	℔ bbl.	8 75	@	9	—
Beef, Prime, new		5 75	@	6	—
Pork, Mess, Ohio, old and new		12 75	@	13	—
Pork, Prime, Ohio, old and new		9 75	@	10	50
Lard, Ohio	℔ lb.	— 7½	@	—	8¼
Hams, Pickled		— 6½	@	—	6¾
Shoulders, Pickled		— 4½	@	—	4¾
Sides, Pickled		— 6	@	—	6¼
Beef Hams, in Pickle	℔ bbl.	12 —	@	12	50
Beef, Smoked	℔ lb.	— 8	@	—	8½
Butter, Orange County		— 14	@	—	16
Butter, Western Dairy		— 11	@	—	13
Butter, ordinary		— 10	@	—	—
Cheese, in casks and boxes		— 6	@	—	7
SEEDS—Clover	℔ lb.	— 6	@	—	7
Timothy	℔ tierce	9 50	@	12	—
Flax, Rough		8 50	@	8	75
Flax, Clean		— —	@	—	—
SOAP—N. York, Brown	℔ lb.	— 3½	@	—	5¼
TALLOW—American, Rendered		— 7	@	—	7½
TOBACCO—Virginia	@ lb.	— 2¾	@	—	5½
North Carolina		— 2¾	@	—	5
Kentucky and Missouri		— 2¾	@	—	5½
WOOL—Ame. Saxony, Fleece	℔ lb.	— 36	@	—	38
American, Full Blood Merino		— 32	@	—	34
American ½ and ¾ Merino		— 27	&	—	28
American Native and ¼ Merino		— 24	@	—	26
Superfine, Pulled		— 31	@	—	32



LADY SUFFOLK

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